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Savage Fish.

MESSRS. EDITORS—In the 3rd number of the SCIENTIFIC AMERICAN, page 19, Volume 10, there is a notice, taken from the Springfield *Republican*, of a curious fish killed by a Mr. Robinson, in the Connecticut river. These fish are, I presume, what is called the gar-fish, of which the waters of this State abound.—There are two kinds, the common gar, and the alligator gar. The former answering the description of those killed in the Connecticut river, and are from that size up to two and three feet in length, shaped like, and resemble very much the pickerel, except its head.—They are very swift and expert in the water, and often swim near the surface. Not long since, while one of my men was washing his hands in the Bayou Teche, near my saw mill, he was caught by the hand by one of these fish and terribly lacerated. The alligator gar grows much larger. His skin is rough, and resembles the skin of the alligator, from which I suppose it takes its name. ALFRED GATES.

Franklin, La., Oct. 4th, 1854.

[This fish is the gar pike, long and well-known in many of our American rivers. Their emigration from waters where they have been long known, to others in which they were not until recently, must modify the views of Prof. Agassiz respecting the laws which govern the distribution of fishes.

Balloon Propulsion.

MESSRS. EDITORS—It seems probable that a balloon might be propelled by a power generated by gunpowder as exhibited in the wheel rocket, which I have seen turn very rapidly for several minutes by the expansive force of gunpowder, or some kindred material acting upon the atmosphere. If this power could be applied to balloons by straitening the coil and firing one end after the straitened coil was fastened to the balloon, it seems that it must propel it through the air, even against a head wind. I have driven a small wagon a short distance by gunpowder confined in a tube attached to the axles, and I can see no reason why a more favorable arrangement would not propel a balloon.

T. H. McL.

Vermont.

[We have no doubt but a balloon could be propelled by gunpowder, but who will do it safely and well. We do not see how it can be so applied, although it has the force. A balloon also, is a floating magazine of itself, within the reach of which no fire should be allowed.

American and British Estimate of Horse Power.

The London *Artisan*, referring to our remarks relative to the nominal horse power of the steamships building on the river Clyde, says, with reference to English engines, "It is well understood that the actual power by indication is from three to five times the nominal power; the average of good sea-going steamers is three times, of fast sea-going steamers, four times, and very fast river steamers, five times."

CLAMPING DOOR AND WINDOW SASH.

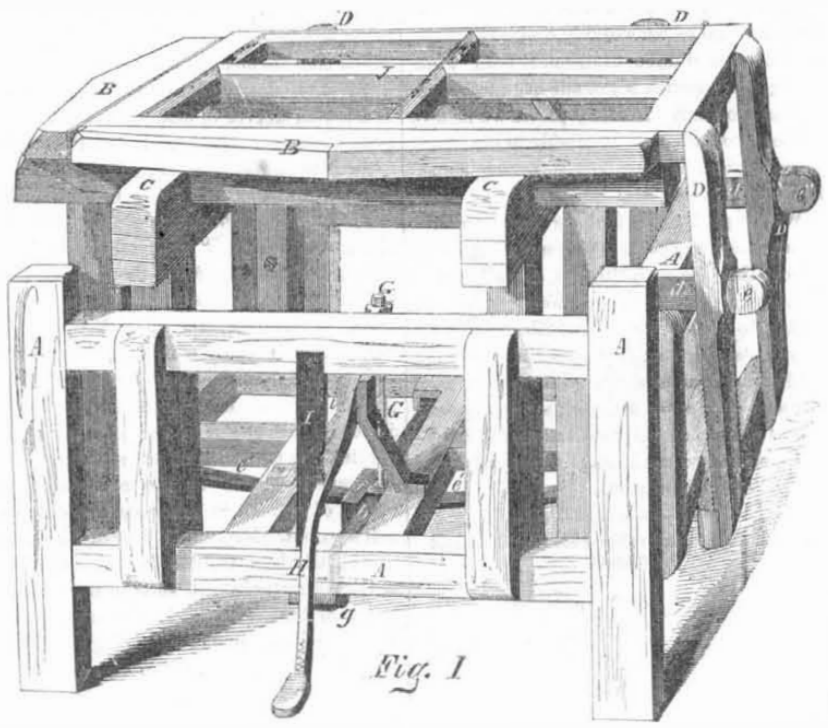


Fig. 1

Figure 1 is a perspective view, and figure 2 a side view of a clamping machine for the purposes named above, invented by Solomon P. Smith, of Half Moon, N. Y., who has taken measures to secure a patent. The same letters on the figures refer to like parts.

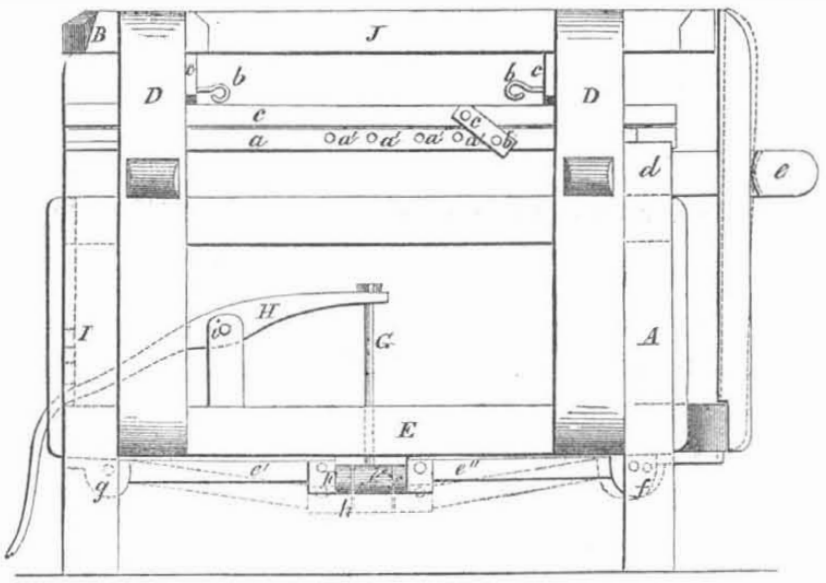
The nature of the invention consists in the employment or use of two or more clamps operated by a toggle joint, in combination with adjustable heads, whereby sashes, doors, blinds, etc., of different dimensions, may be firmly held while being pinned or fastened at the joints.

A represents a rectangular frame having at its upper part the heads or bars, B B, which are attached to the ends of horizontal slides, C, said slides resting upon cross pieces, *a*, of the frame, and secured to them at the desired points by bolts or pins, *b*, which pass through plates, *c*, attached to the slides, C, and through holes *a'*, in the cross pieces, *a*.

The two heads or bars, B B, are so arranged as to be at adjoining sides of the frame, A, the slides, C, and cross pieces, *a*, crossing each other at right angles. The two sides of the frame opposite to the sides at which the heads or bars, B B, are placed, have clamps, D D, opposite them, two clamps being at each side. These clamps are upright bars which work on projections, *d*, which extend outward horizontally from the frame, A, and are provided with knobs or heads, *e*, at their ends; the clamps fitting loosely on the projections and the heads or knobs being on the outer sides of the clamps. The lower ends of the clamps at each side of the frame, A, are connected together by a bar, E.

Underneath the frame, A, there is a toggle

Fig. 2



joint having four levers, *e' e' e" e"*, the two levers, *e" e"*, being connected at their outer ends by joints, *f*, to the bars, E E, and the other two levers being secured at their outer ends by joints to *g*, to the lower part of the frame, A. The inner ends of the four levers are connected by joints, *h*, to a head, F, which is directly underneath the center of the frame, A. G is a vertical rod, the lower end of which is secured to the center of the head, F. To the upper end of the rod, G, there is attached a lever, H, having its fulcrum at *i*. The outer end of this lever is bent downward as shown in figure 2, and projects a short distance from the side of the frame, A, and works against a vertical notched bar, I. J represents a window sash secured between the heads or bars, B B, and the clamps, D D. The sash, J, or the door or blind to be clamped is laid horizontally upon the upper part of the frame, A, two adjoining sides of the sash being against the heads or bars, B B. The outer end of the lever, H, is then depressed by the foot, and the head, F, underneath the frame, A, is raised, and the levers, *e"* force outward the lower ends of the clamps, D, and cause their upper ends to press against two sides of the sash, which will consequently be firmly secured between the clamps, D, and heads, B.

The heads or bars, B B, by being secured to slides, C, may be adjusted nearer to or further from the frame, A, so that different sized articles may be clamped with the same apparatus.

More information may be obtained by letter addressed to the inventor.

Arresting and Re-Acting Springs for Fire Engines

On the 12th of September last a patent was granted to Franklin G. Smith, of Columbia, Tenn., for the above-named invention.

The following extract from the specification attached to the Letters Patent, describes the nature of this improvement—of the importance of which any one acquainted with mechanics can judge for himself:—

"The design of these springs is to prevent the great waste of power incurred in working the common fire engine, by causing the descending arm of the working lever, (instead of being arrested by some solid part of the machine,) to give over all its momentum to springs of such strength as easily to offer the requisite resistance to the blow, and of such elasticity as to give over nearly all of that power to the return stroke of the engine. In the form commonly seen, every successive stroke of the fire engine starts from a dead rest, and the power with which the stroke ends is totally lost in giving a blow to the frame of the engine, giving it a very injurious concussion, and causing painful shocks upon the arms of the firemen. The springs now proposed prevent all jar and concussion from the stroke of the levers, and (supposing the springs to be perfect, that is, to re-act without any loss of power from friction) they convert the entire power with which the stroke is ended, into power acting in the opposite direction for beginning the next stroke. In these drawings the springs are represented as being made of successive plates of steel, merely because this is the usual form in which that metal is used for that purpose; and therefore the nature of my invention can be made more clearly intelligible by supposing this to be the form of the springs used for the fire engine. But I do not restrict myself to any one form or material for these springs. They may be made of any shape and any material, so that they will arrest the whole momentum of each stroke, and re-act with energy in starting the succeeding stroke.

I claim constructing fire engines with springs, in any manner substantially the same as hereinbefore set forth, and for the purposes specified."

Ocean Postage.

An uniform rate of 6d has just been announced in England for Australia. Why cannot this be done between England and America. If a letter can be conveyed 16,000 miles for 6d, why cannot it be taken 3500 miles for the same money? There seems to be a very general feeling among commercial people that one penny would pay well, and very greatly extend the already largely increasing trade between the two countries. Sir Rowland Hill being at the head of the British post office, will prove no impediment to this much-to-be-desired facility for communication between England and the United States.

Subterranean Animals.

In Carniola and other places, there are caverns which certain animals never quit, though no light enters these caverns, in which case the organ of sight is useless.

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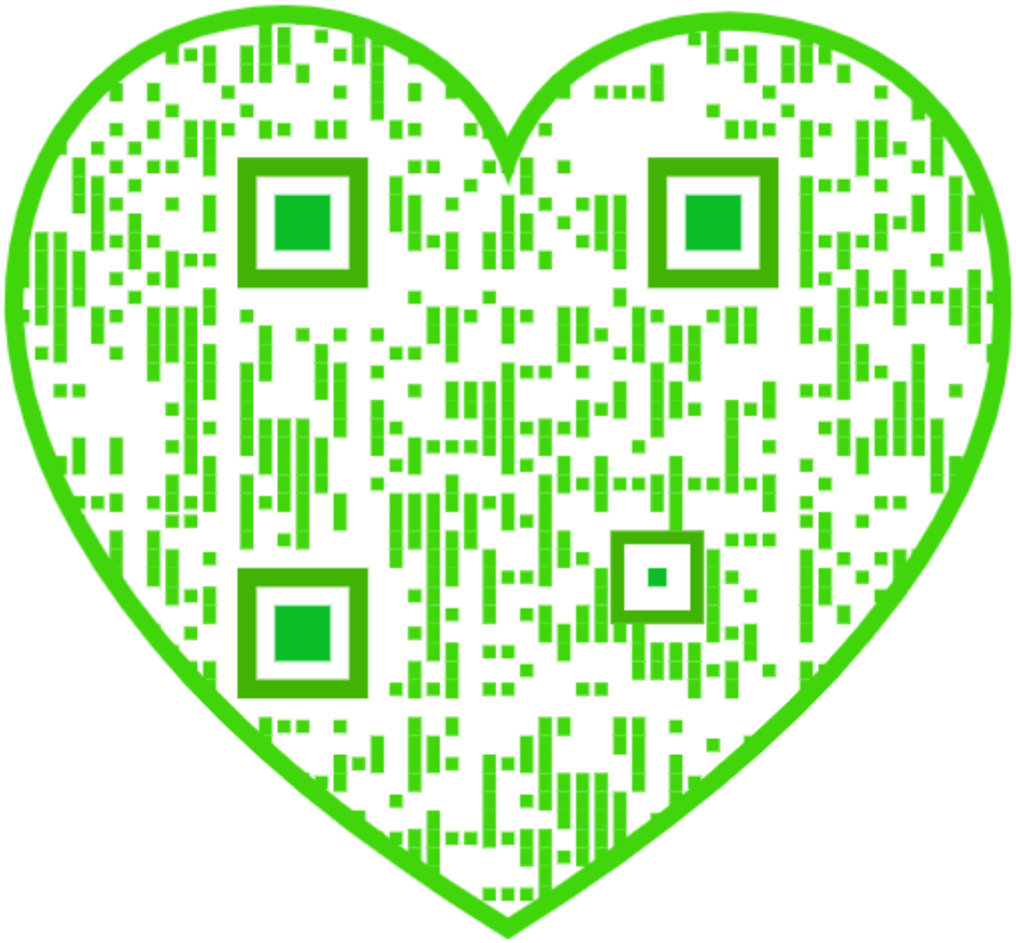


Artesian Well Inquiry—Agriculture.

MESSRS. EDITORS—Artesian wells, I understand, are formed by boring into the earth until the instrument reaches water, which, from internal pressure, flows spontaneously. The depth to which such wells must be sunk probably varies in different countries, and in different parts of the same country; but my object is to ask for information with regard to the depth they usually must be sunk in order to have the water flow spontaneously—whether it will do this invariably in all countries, regardless of elevation—how large in diameter are they usually made, and what is the expense of making. The scarcity of water throughout large districts of country in various parts of the West during the prevalence of such a drouth as has so extensively prevailed the past season, has called forth this inquiry; and we are led to devise ways and means to provide a remedy, not only for watering the stock, but for irrigating the dry and parched earth. Much has been written upon the subject of draining low land, and very properly; but less upon the subject of rirrigating up land than its importance demands. Thousands of acres of fertile land are rendered barren during much of the growing season from want of water. Could not an artesian well be made to send forth its water to be conducted in pipes or drains to (partially at least) supply the demand? Or could not the very draining of low lands be sent back again, by the aid of suitable machinery, to water the soils through which it has percolated, in their immediate vicinity; or could not the water of a common well be raised, by the power of wind, to water land and stock sufficient to justify the outlay.

There are many subjects of deep interest connected with your paper, and I could fill a sheet of inquiries, but I will not further burthen you at present. I rejoice to find so much of it devoted to the interests of the farming community, by bringing into notice labor-saving machinery to aid the tiller of the soil.—This seems the more necessary from the difficulty of obtaining the requisite amount of help through the busy season; and every farmer ought to take the SCIENTIFIC AMERICAN and there learn something of the extent to which all branches of industry are aided by suitable machinery, and be not so slow in adopting it after it has been thoroughly tested. The application of machinery to farming purposes is of modern date; and when we consider how much has been done within the last ten years, hope brightens for the future and when the energies of the human mind shall be expended as vigorously to relieve the hand from toil in farming operations, as has been done for the benefit of the manufacturing and mechanic arts, then will the tiller of the soil be relieved, in some measure, from the weight of the curse, "In the sweat of thy face shalt thou eat bread," of the existence of which those who have swung the cradle or the scythe during the months of July and August, the past season, have had a *feeling* demonstration, and many would doubtless be willing to step aside and let the reaping and mowing machine pass along. And, finally, when as much time and money shall have been scientifically expended to bless and save mankind, as has been to curse and destroy them—when the soil, under improved cultivation, shall be enriched with each successive crop, by the judicious application of those fertilizing substances which science has discovered, instead of being manured with the heaps of those slain in war, and in the absence of the rain of Heaven, watered by those artificial means which science may yet discover, instead of being deluged with human blood, then will the "Wilderness and solitary place be glad, and the desert blossom as the rose.''

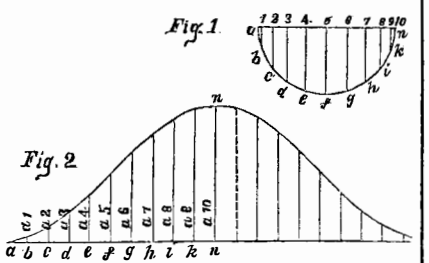
J. C. ROGERS.

Grand Rapids, Kent County, Mich. Sept. 30 1854.

[No person can tell what depth must be reached in a new country, before water is obtained by boring, and, as our correspondent infers, the depth varies in the same basin. It is not in every country that water can be obtained by boring; it must possess peculiar geological characteristics. In volume 8, SCIENTIFIC AMERICAN, we published a series of illustrated articles on artesian wells, and on page 88 of that volume our correspondent, and all those interested in this very important question, will find a great deal of the information required. We do not know the cost of boring by the foot or yard, nor can this be uniform, as it is more expensive to bore in one district than in another. We are positive that many of the extensive plains of the West can be supplied with water from artesian wells. The drainage of lands might, to a certain extent, (as suggested) be returned for irrigation by the use of windmills; but in Holland the use of steam engines, for working drainage pumps, has been found more economical than windmills; this question is not one of practicability, but economy. In many places we believe farmers would find it profitable to use small steam engines, for pumping, thrashing, churning, sawing wood, &c.

We are glad to see that our correspondent appreciates our efforts in disseminating useful information for agriculturists, as well as mechanics and manufacturers. No farmer should neglect to possess the present illustrated history of reaping machines which is now being published in our columns. Our farmers may rest assured that we will neglect no opportunity of publishing all new and useful inventions relating to agriculture, chemically and mechanically considered.

To Cut Elbows and Stove Pipes by Rule and Compass.



This, at first sight, somewhat difficult question, is readily solved as follows:

Figure 1.—Draw a straight line, *a n*, and make it equal to the diameter of the stove pipe, then draw the semicircle, *a f n*, and divide it (the semicircle) into as many equal parts as may be found convenient, *a b c*, &c. From these parts of division draw perpendicular lines upon the diameter, which will divide the figure into ten unequal parts. Fig. 2—Calculate the length of the semi circle, fig. 1, by the proportion of $1 \times 3{\cdot}14159 \div 2 = a\ b\ c\ d$ &c. Draw a straight line for the base, and make it equal in length to this semicircle, and divide it into as many equal parts as the semicircle was divided—ten; and then draw the perpendiculars *a*1—*a*5—*a*10, and make them equal to the lengths of the parts of the diameter of fig. 1, beginning from *a* to 10.—That is, the vertical line, *n n*, *a*10, fig. 2, is the diameter of fig. 1; the next vertical line, *a*9 fig. 2, is the length, *a*9 of the diameter fig. 1, and thus draw all these vertical lines on fig. 2, the last one being *a*1 which is the short division *a*1 fig. 1. Join the ordinates in these points by short lines, and we have the diagram for a gutter, (one half of fig. 2,) double it and then we have one for a stove pipe (all fig. 2,) two of which, when joined, form an elbow of 90°. Fig. 2, it will be observed by tinsmiths, resembles the pattern used for elbows. Care should be exercised that the distance between the abscisses do not exceed half an inch—a quarter of an inch will be pretty correct.

This rule for cutting out stove pipe elbows, is an answer to the question of a correspondent.

ADOLPH MAHLER,

127 Anthony Street, New York.

Rule for Blacksmiths.

SHORT METHOD OF GETTING THE CIRCUMFERENCE OF WHEELS—Divide the diameter by seven, add the product to triple the diameter, and three thicknesses of the iron. These added together make the length on a straight bar of iron, for the tire of a wheel. Thus, allowing the diameter to be 10½ inches, say, 10 50÷7=1·5+31·5+1·5 (allowing the iron to be ½ inch thick)=34·5 inches. Yours,

Warrington, Va. R. T. HILL,

(For the Scientific American.)

Wood Gas.

In reply to the statement in your paper of the 7th inst., that I am incorrect as to McConnell's patent of 1851, permit me to say that McConnell's patent of that date contemplates the making of gas, tar, pitch, and charcoal from pine wood. The patent was granted for the apparatus. The recent patent of McConnell is for a process in making gas from wood, and not for an apparatus. The application was made for his apparatus and process, but the Patent Office refused to consider both subjects under one application, ruled out the claim to the apparatus, and granted the patent for the process, which consists merely in subjecting the products of the destructive distillation of wood to a higher degree of heat than that necessary to their development. Lieut. Porter was a party to an interference declared between himself, McConnell, and two German chemists. Mr. Porter, however, did not intend to claim the principle of "reheating," and having been informed by the Patent Office that if he claimed this he would be a party to the contest, he thereupon disclaimed it, the Office removed him from the interference and granted him a patent before the interference between the remaining parties was decided. His patent was granted for an apparatus, the use of which necessarily involves McConnell's claim to the re-heating, and which, of course, is subordinate to McConnell's patent. McConnell proved his invention clearly back to 1849, and triumphed, and as the German chemists state in their foreign patent of 1851, that wood gas cannot be made available without the reheating, so it has been found here. The advantages claimed for wood gas are many, and although not superior to coal, rosin, or oil, under all circumstances, yet it has been found to be decidedly so under some. A recent investigation in the city of London showed that a cubic foot of soil taken anywhere in the city, contained poison enough to kill a man. These were sulphuretted hydrogen and bisulphuret of carbon, derived from the infiltration of the gas through the soil from old and leaky pipes, etc. The gas from wood is not disagreeable to the smell, and is not deleterious any further than pure carburetted hydrogen.

CHAS. G. PAGE.

Washington, D. C., Oct. 7th, 1853.

Submerged Paddles, or New Method of Propelling Vessels.

The following has been communicated to us by a Polish engineer, who has invented the method in question:

"There are at present two methods of propelling vessels in water, viz: the wheel-paddles and the screw. However, in the natural movement of living aquatic animals we see a third kind of propulsion, which by alternate and continual contraction and extension of limbs constitutes a system of propelling which may be called *submerged paddles*.—Based on this ground I form, under water on each side of the vessel, two series of paddles, affixed by two shafts to the axle, which is placed and turns in the same manner as in the present wheel paddles. At the outside extremities of the axle is affixed a strong perpendicular lever, turning with the axle and connected with the shafts of the paddles.—The other cords of the shafts are attached, one to the ship's side forward, the other to the ship's side backward, in such a way that they perform a continual oscillatory movement. Now, by rotation of the axle, one of the extremities of the lever goes forward while the other goes backward it follows, then, that by spontaneous action, these paddles going forward must be contracted, while those going backward must be extended, and by their resistance in water increase the power of propulsion.—[N. Y. Tribune, 20th inst.

[Those who have not devoted attention to the history of inventions, and who are not acquainted with mechanical principles, are liable to call things *new* which are *old*, and by disseminating such information, not only exhibit their want of knowledge, but lead others astray.

The above paragraph describes the Duck's-foot propeller, so well known to all intelligent American and English engineers. The Polish engineer who has re-invented it as a new system of propulsion, is nearly a century behind the age. This kind of propeller was invented by the Earl of Stanhope, the friend of Fulton, before the latter had perfected the application of the paddle-wheel to steamboats. A patent was also taken out for an improvement on this kind of propeller in 1848, by George Seibert, of Maryland, an engraving of which will be published in the SCIENTIFIC AMERICAN of next week.

To Inventors—About Models.

U. S. Patent Office, Oct. 17, 1854.

GENTLEMEN—The models in the following late applications are too large to meet the requirements of the Office. At your request, they will be reduced by the machinist attached to the Office, for the fees annexed.

1. Robt. White, for constructing R. R. Car platforms, fee $7.

2. Edwin Young, for improvement in slate frames, fee $3.

3. Nathan Brand, for machine for bending forks for agricultural purposes, fee $2.75.

4. Anthony Everson, for connecting canal boats, fee $1.50.

5. Horace W. Pearslee, for washing paper stock, fee $3.

6. John Fraser, for adjustable vise, fee $1.50.

7. Chas. Wilgus, for tentering and napping cloth, &c., fee $1.50.

New models will be required in the applications of Thos. S. Whitenack, for grain and grass harvester, and Jonathan Pearce, for machinery for making rope. Fee for the former $30.00, for the latter $75.00.

Very respectfully, C. MASON.

Messrs. Munn & Co., New York.

[We publish the above for two purposes,—first, as a warning to inventors who are about to make an application for a patent, not to make their models so large as to be obliged to pay any such little expenses for curtailing them; and second, to save ourselves the trouble of writing a score of letters announcing what is contained in the annexed paragraph.

The parties referred to in the above letter will please to remit us the several amounts specified, which we will immediately transmit to the Patent Office, for the purpose for which they are required.

French Weights Reduced to English.

As French weights are now used in many scientific works, which are translated and reprinted in our country, we present the following table, so that all our readers may understand their relation to that of the English standard.

Milligramme . . .	·0154 grs.
Centigramme . . .	·1544 "
Decigramme . . .	1·5414 "
Gramme	15·4440 "
Decagramme . . .	154·4402 "
Hecatogramme . .	1544·4023 "
Chiliogramme (Kilogram.)	15444·0234 "
Myriogramme . .	154440·2344 "

A Decagramme is 6 dwts. 10·44 gr. tr.; or 5·65 dr. avoir.

A Hecatogramme is 3 oz. 8·5 dr. avoir.

A Chiliogramme is 2 lbs. 3 oz. 5 dr. avoir.

A Myriogramme is 22 lbs. 1·15 oz. avoir.

100 Myriogrammes are 1 tun, wanting 32.8 lbs.

There are 7000 grains in 1 lb. avoir.

Affliction and Pestilence.

The hand of Providence has been laid heavily during the present year on many parts of our country. The yellow fever, the cholera and many fearful accidents, have desolated many homes that were once blithe and happy, but which are now silent and sad. We have received a letter from a correspondent, C. Nance, of Knoxville, Tenn., dated 15th Sept., in which he states, that out of a population of five thousand, only five hundred remained in the city. In the course of three weeks there were seventy deaths from cholera. Knoxville is situated in a high, piney, healthy region, in which it was also believed it would not appear. We are glad to hear that both the cholera and yellow fever are abating in our Southern States with the return of cool weather.

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Geology—Gold.

We have before us a copy of the *Democratic Transcript*, (Canton, Ohio,) dated the 22nd ult., containing an illustrated paper of Prof. J. Brainard, on the origin of the quartz pebbles of the sandstone conglomerate, in which he opposes the old theory, and adopts a peculiar one. The opinion of geologists respecting the origin of quartz pebbles, is that they have been formed by the action of water, frosts, &c., upon rocks, separating them first into small fragments, then rounding them by a rubbing action upon one another. The theory of Prof. Brainard is that "the sand rocks of the Devonian system have been formed from a solution of silicious matter in the waters of the primitive ocean, and that the grains of sand have suffered little or no disturbance except upon shoals, the beach of the ocean, or in streams of running water." This theory is supported by a great deal of plausibility by engravings, showing layers of these pebbles in an apparently undisturbed position. The theory then amounts to this, that at one time by internal heat the silicious matter which formed these pebbles was reduced to a fluid state, and became pebble crystals at the bottom of the ocean. It is difficult for us to conceive how fluid silex could be formed into pebbles at the bottom of the ocean; but we have merely presented the pebble theory as an introduction of some interest to two more important geological questions.

In this paper, Prof. B. says "there is no controversy among geologists in regard to the antiquity of the granite rock. It is the oldest formation found in the earth's crust, and underlies all others. It has furnished material in combination with oxygen, carbonic acid, and other gases, for all the stratified series." This opinion respecting the oldest primitive formation is very generally entertained, and has been set forth in elementary works on geology. We have evidence before us to show that it is not correct. Prof. Hall, of Albany, N. Y., has said "all the granites of New England were made up from the destruction of the earlier stratified rocks—including those of the fossiliferous period." At the meeting of the British Association, which was held in Belfast, Ireland, in 1851, Prof. Donovan asserted that "the granite was not the oldest formation, that it was underlaid by greenstone in various parts of Ireland." This was disputed at the time, but information from California corroborates his opinions. In the *Mining Magazine* for last month—an able periodical—there is a paper on the Mineral District of Central California, by Prof. J. Trask, in which he says, "thus far the granite series has not been found to exceed a depth of but little more than one hundred feet." "Immediately below the granite the greenstone is found underlaying this entire section of country." This for the present settles the disputed granite question, and brings us to another controverted geological question, viz.: the position of gold veins, and their origin.

The opinion held heretofore respecting the origin of gold, was that it belonged to the more recent formations, and that gold quartz veins depreciated as they descended from the surface. Sir Roderick Murchison says, "the chief quantities of gold, including all the considerable lumps, have been broken up by denudation, and transported from the mountain tops into the adjacent valleys." He also thinks that the rocks were impregnated with it at a comparatively recent period—"a short time before the epoch when the powerful denudations took place, which destroyed the large extinct mammalia." Humboldt is of the opinion that the formation of gold had some closer relation to the atmosphere than lead, copper, or iron, and Dr. Percy is disposed to believe that it was once held in solution in an aqueous medium, and thrown down by deposition. These opinions of eminent geologists respecting the comparatively recent formation of gold, have led their authors to assert that the gold of California and Australia would soon be gathered up, and that it would not be profitable to mine deeply for it, as the gold quartz veins would become barren in proportion as they descend. These opinions Prof. Trask asserts in his paper are not applicable to California—that the gold quartz veins become richer as they are penetrated downwards. He says, "in every instance where the granite has been perforated, the greenstone rock has been found beneath, and in every mine throughout the northern districts, in which the greenstone has been reached, the veins (gold quartz) have penetrated this rock, and in *no one* instance is it found that the vein is either pinched or faulted, but the reverse is true, that every set has increased in power *the deeper they descend*. Of six companies now in successful operation in Grass Valley, all of them are obtaining their ores from the greenstone in larger quantity and better quality than was found to be the average in the granite above." Here then is testimony against the theory of Sir Roderick Murchison, Humboldt and others, respecting gold veins coming from above, and which goes to prove that they came from below.

This we consider is one of the most important questions of the age, respecting the geology of the gold formations. If, according to Prof. Trask, it be true that the gold quartz veins become richer as they are penetrated, it is confirmatory evidence of a very old theory respecting the formation and arrangement of the different strata composing the crust of the earth. This theory supposes that our globe was once in a fluid state, and that as it revolved on its axis, the different substances of which it is composed, arranged themselves according to their specific gravities, the heaviest towards the center, and the rest like the coats of an onion—the lightest being at the top. Following out this idea, an acquaintance of our's has long held the opinion that if he could but dig deep enough into mother earth, he would certainly arrive at a bed of pure gold. We do not know what effect Prof. Trask's investigations may have upon him, they certainly afford evidence in favor of his notions. At any rate, we have presented this important geological question as it now stands, so that all may understand it. And we hope that all future investigations will lead to the certain gratifying result, that we stand on a foundation of gold, instead of dwelling upon a planet having only a few favored spots here and there of its surface bespangled with this precious metal.

American Steam Navigation.

On page 35 we published the account of the first steamer (the *Savannah*) which crossed the Atlantic, since which time we have received the following letter from Captain R. B. Forbes, of Boston, describing the part he has taken in establishing ocean navigation with American vessels:

"I built the auxiliary steam propeller *Massachusetts* for myself and others in 1845, and sailed in her on the 15th September, or thereabouts, from New York for Liverpool, and arrived on the 2d of October, having used steam nearly eleven days out of seventeen and a half. This was the first packet ship under steam that started and performed more than one complete voyage between the United States and England under the American flag, and was the first propeller that was put into the trade. The *Savannah*, a ship with a small steam-power applied to paddles, went to England in 1819, from the United States, and I believe she returned, but whether she used steam altogether, or only occasionally, I know not.

"The propeller of the *Massachusetts* was of composition metal, 9 feet diameter. She had two cylinders of 17,640 cubic inches each, set at right angles. The propeller was contrived to take out of the water at pleasure, and when out of water, the ship was a perfect sailing ship of about 760 tuns. She made two voyages from New York to Liverpool and back, and was then chartered, and afterwards sold to the War Department, and is now on the Pacific.

"The steam schooner *Midas* was the first American steamer that ever went round the Cape of Good Hope. She sailed from New York on the 18th November, 1844, and after touching at Mauritius and Singapore, arrived safely in China, and ran on the river between Canton and Hong Kong until her boiler was worn out, when she was sent to Rio Janerio under canvas, and thence came to New York, and was sold, and is still running as a sailing vessel.

"The steam bark *Edith* was built, as were the *Midas* and *Massachusetts*, by Samuel Hall, of East Boston. She sailed from New York February 18, 1845, for Bombay, under command of Capt. George W. Lewis, and was the first American steamship that went there. She proceeded from Bombay to China in 24½ days, beating all her competitors, and after running a short time, was sent to Rio Janerio with teas and silks under sail, and from there came to New York, was chartered by the War Department, and finally sold, and went (as did the *Massachusetts*) round Cape Horn to California, and was there lost. The *Edith* was therefore the first steamship that ever went to China and back, where the steam was afterwards available.

"I am not sure, but I think no American steam vessel has been to Bombay since the *Edith*.

"The little iron steamer *Mint* built for myself and others, was the first steam vessel that plied on the waters of the Sacramento. She went out complete on the deck of ship *Samoset*. Gen. Scott had his flag and staff on board the *Massachusetts* at the taking of Vera Cruz.

"I believe the *Falcon* paddle-steamship was the first steamer under the American flag that went to Chagres. She was built by myself and others, and was sold to George Law, and was under his orders at the time she went to Chagres.

"The propeller *Marmora* went to England before the *Massachusetts*, on her way to the Mediterranean; and the steamer *Bangor* (paddle) went to Gibraltar; but the *Massachusetts* was the first regular steam packet ship between us and England under our flag.

I sent to China, in frame, the steamer *Spark*, now running between Canton and Hong Kong, the first American paddle-wheel steamer that ever run in Chinese waters. In 1848, I sent to China a little iron propeller, the *Firefly*, which plied between Whampoa and Canton for one year, and was sold to go to San Francisco, where she ran for some time. Yours truly,

R. B. Forbes."

Remarks—In the year 1846 the *Southerner* was built and put upon the route as a regular Mail Steamers between this city and Charleston, S. C., but, if we are not greatly mistaken this was the first American true ocean mail steamer; but regular Atlantic steam navigation was established between England and New York by the *Great Western*, ten years before. J. Scott Russell attributes to R. L. Stevens, of this city, the greatest credit for improvements in American steam navigation—and as being the author of steam navigation in the open sea, having taken a steamboat from New York to the Delaware, more than forty years since. In all the published accounts of the passage of the *Savannah* to England, it is stated that the people on the British coasts, when she was first seen, reported that it was 'a ship on fire at the mast and moving without, sail." We have thought there must be some mistake in this assertion, as steam navigation was established on the Irish Sea in 1818, and between Holyhead and Dublin in 1819.

A Splendid Work of Art.

It is proposed to erect a gigantic statue of Shakspeare in London, to be of cast iron, and one hundred feet high. There are to be three floors, the sides of which, it is proposed, shall be adorned with bassi-relievi in cast iron, representing all the chief scenes in the plays of the great dramatist. Light is to be admitted through the eyes and the top of the head, and also through openings in the drapery of the statue. It will probably be one of the most splendid monuments to the genius of that wonderful man, which art is capable of elaborating.

To Destroy Thistles.

The Canada thistle is easily subdued, if they can be plowed. Plow in the fall and sow to wheat, and stock down heavy with the large red clover and timothy. In the spring, as soon as the ground is dry, or the clover is two inches high, sow plaster as much as you please, from one-half to four bushels per acre. Get your wheat off as early as possible; let the clover grow as late in the fall as convenient; then let nothing but calves and yearlings on to it, nor let it be fed more than just to keep the mice from nestling in it. The better you can make the clover grow, the more fatal to the thistle.—[Germantown Telegraph.

British Association for the Advancement of Science.—No. 1.

The twenty-fourth annual meeting of this association commenced in Liverpool, on the 20th of last month, the Earl of Harrowby in the chair. A great number of very interesting papers were read, and some very animated discussions took place.

A New Kind of Ape—Prof. Owen, the celebrated naturalist, delivered a lecture with diagrams, on man-like apes, and described a new species recently discovered on the western coast of Africa, named the Gorrilla species, the adults of which attain the hight of five feet five inches, and are three feet broad across the chest. Its head is double the size of a man's, and its extremities are enormously developed. They existed in some numbers in the interminable forests of the Gambia river. The negroes of the country, in their excursions into the forests in search of ivory, exhibited little fear of the lion, as it slunk away from man, but they dreaded the gorrilla, for when he saw man advancing he came down out of the trees to the attack, and could strangle a man with the greatest ease. The strength of this man-ape is enormous; his jaw is as powerful as that of a lion, and his canine teeth equally formidable.

The Moon's Surface—James Nasmyth, C. E., inventor of the steam hammers, read a paper, accompanied with splendid figures and a model, showing the volcanic craters existing on the moon's surface. The volcanic matter is thrown up with such force, that it is spread for a great distance around, forming a ring with concentric circles. The craters of the moon varied in diameter from forty to one hundred and twenty miles—they were much larger than those of the earth. He attributed the highly volcanic character of the moon's surface, and the greater intensity of volcanic power to the shorter space of time allowed for the crustation of its outer surface. Prof. Phillips, who was present, said he concurred with this opinion, and with respect to the absence of water in the moon, he was once so thoroughly convinced, that he considered it heresy to treat of it as being in that planet, but, after looking through Lord Rosse's telescope, he had altered his views. He was also convinced that it possessed no perceptible atmosphere. He had frequently watched different planets passing behind it, or the moon passing them, and there was always a total obstruction the instant the moon's disk touched the planet.

Geological Wonder in New South Wales.

R. Cook, a correspondent of the London *Illustrated News*, has, through that paper, presented a sketch of a wonderful scene in New South Wales. The rocks present the appearance of having been battered with cannon, and the ground is strewn with large globular blocks of granite. Some of these are plunged into the rocks as if the latter had been in a soft state when these geological balls were forced into them. It is one of the most remarkable and mysterious features of geology yet discovered. We have no doubt but the moon's surface is studded over with the same kinds of globular masses; the lunar daguerreotypes of Mr. Whipple, of Boston. afford some evidence for entertaining this opinion.

A Curiosity in Mechanic Art.

The great bell of Vienna weighs 35,400 pounds, and a small family could live conveniently under the immense structure.—Eight men are required to ring it, as the clapper alone weighs 1,400 pounds. In the room with the clock is stationed a man to watch for the breaking out of fires in the city and suburbs. He takes the angle by means of a fine telescope, and on a chart prepared for the purpose, finds the street and house, and the alarm is then given.

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New Inventions.

Railroad Burden Cars.

G. V. Hoyle and A. Klohs, of Rouses Point, N. Y., have taken measures to secure a patent for an improved method of constructing burden cars, and which has for its object the security of the stakes, which are set loosely in the cars of common construction, and which are so often lost as to cause a considerable loss to every railroad company. The new method of securing the stakes is to have them secured to fulcrum pins, so that they cannot be detached, and at the same time they can be raised or lowered, as may be desired.

Window Sash Fastener.

Application has been made for a patent by Charles Tyrrell, of Corfu, N. Y., for an improvement in window sash fasteners, which consists in providing one side of each sash with a toothed plate, into which suitable spring stops secured in the adjoining frame work, which fasten the sash in any desired position, both stops being operated by one thumb pin, which extends to the outside of the window frame.

Tenoning the Hub End of Wheel Spokes.

On the 29th of August last, a patent was granted to R. L. Sibbet, of Shippensburg, Pa., for the improved machine for the purpose specified in the above caption, and which is represented in the accompanying engravings, of which figure 1 is a plan view of the machine; figure 2 is a side view, and figure 3 a detached perspective view of the plane. The same letters refer to like parts.

The nature of the invention consists in securing, in a peculiar manner, a series of spokes within a frame, and so adjusting them by keys and set screws, that a plane of proper construction run over the ends of the spokes will cut the proper tenons thereon.

A, figure 1, is a horizontal board or plate, having a ledge or projection, *a*, at its front end, against which a gauge block, *b*, rests; B B are ledges or projections at the sides of the board or plate, and projecting upward a short distance from the front of the board plate, somewhat higher than the front ledge, *a*; C is a guide strip which passes across the board or plate, A, and is attached to the ends of the ledges, B B, the guide strip being parallel with the ledge, *a*, as shown in figure 1, but some distance above it. The guide strip has a rebate, *c*, cut in its front edge; D is a block which passes across the board or plate, A, directly in front of the gauge block, *b*, the ends of said block passing through mortises in the side ledges, B. The block, D, does not extend upward as high as the ledge, *a*, but its hight may be varied by means of keys, *d*; E is a cross piece at the back end of the board or plate, A. This cross piece is slotted lengthwise, and has upright pins, *e*, which fit in the slot, and keys, *f*, pass through the pins, *e*, at right angles; F represents the spokes, the thick or hub ends of which rest upon the block, D, and the extreme ends against the gauge block, *b*. The back ends of the spokes rest upon the cross piece, E, and are kept properly in place, or the proper distance apart, by the pins, *e*, and keys, *f*, two spokes being between two pins or keys, as shown in figure 1. G is a cross bar which extends across the spokes, F. The ends of this cross bar fit in inclined slots, *g g*, in the ledges, B B, and when it is forced in the slots *g g*, it binds firmly upon the spokes and keeps them upon the block, *b*, and cross piece, E; H H are set screws which pass through the ledge, *a*, the ends of the set screws bearing against the gauge block, *b*.

I is a plane having a recess, *h*, cut in one side to correspond to the rebate, *c*, in the guide strip, C. Besides the ordinary plane iron, *i*, the plane is provided with a cutter, *j*, directly in front of the plane iron, for the purpose of cutting the smooth shoulders on the spokes. The spokes, F, are clamped in the machine, or bound firmly down upon the block, D, and cross piece, E, by driving the cross bar, G, in the slots, *g g*, in the ledges, B B, and the plane, I, is then placed upon the thick ends of the spokes, the plane resting in the rebate, *c*, in the guide strip, C. By moving the plane along, the tenons are cut on one side of the spokes, the cross bar, G, is then loosened and the spokes turned over, and their opposite sides are cut in the same manner, and the tenons are formed. The tenons may be cut of different lengths by moving the gauge block, *b*, further in or out, by means of the set screws, H H, and the tenons may be cut of different thicknesses by raising or lowering the block, D, by means of the keys, *d*.

TENONING THE HUB END OF WHEEL SPOKES.

Fig. 1

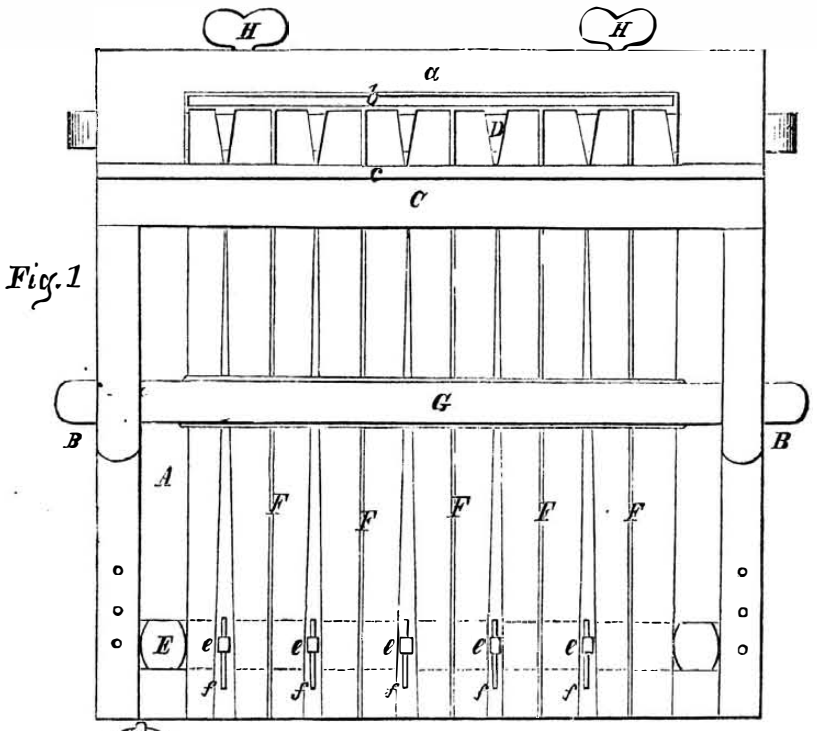

Fig. 2

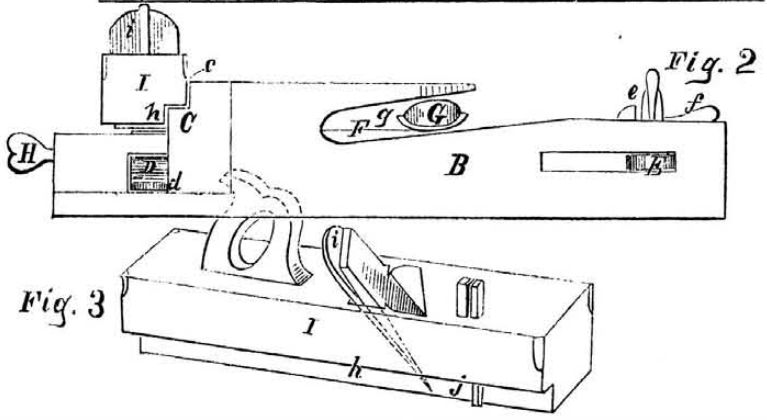

Fig. 3

Many spokes may be operated upon at the same time, according to the size of the machine. The apparatus or machine is simple, not liable to get out of repair, and may be constructed by any mechanic or worker in wood, and at a small cost.

The claim is for "securing a series of spokes, F, upon a board, A, provided with ledges, B B, an adjustable gauge block, *b*, guide strip, C, cross piece, E, bar, G, and block, D, constructed and arranged substantially as described."

More information may be obtained by letter addressed to the inventor.

STRAIT'S CHAIN PLATE RAILWAY.

Fig. 1

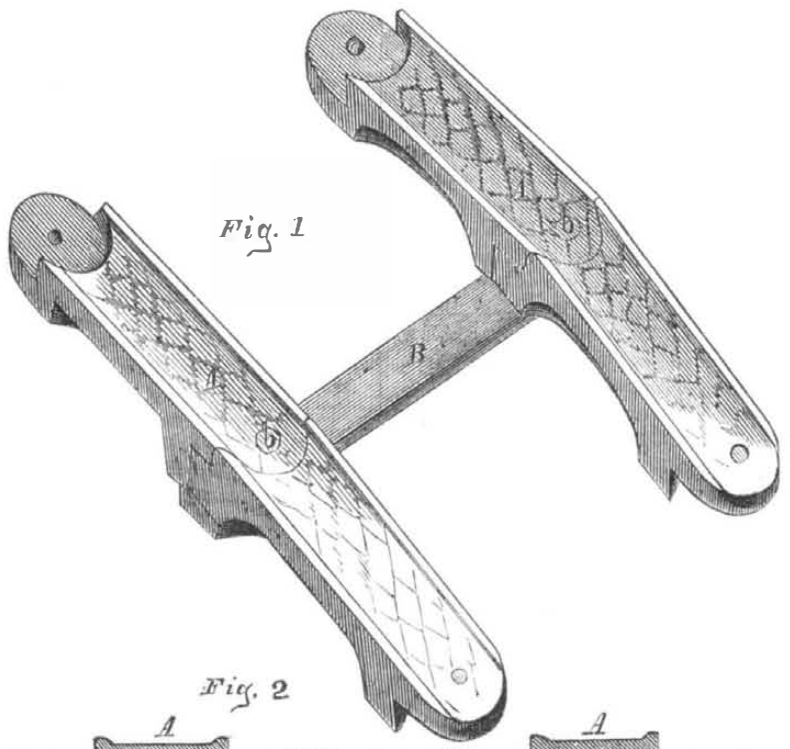

Fig. 2

The annexed figures represent an improvement for converting common roads into railroads for carriage and wagon travel, invented by H. Strait, of Covington, Ky., who has taken measures to secure a patent. Fig. 1 is a perspective view of the plate railway, and fig. 2 is a vertical transverse section. The railway consists of a series of plates, A A, of cast iron with chilled faces, (or of wrought iron) made with a seat at one end of each plate to receive the circular flange of the next or connecting plate, and with a flange at the other end, to fit into the circular seat of the next plate, each pair of plates being united together by a vertical key, *b*, passing through the eye made in each plate. This mode of constructing and uniting these plates, forms a continuous or chain railway, like fig. 1, which shows four plates united together, forming one track. Each chain of rail is united to the other at the joint by a cross tie, B, thus making a solid track, which is to be evenly imbedded in common roads for the wheel tracks of carriages and wagons, and is intended as a superior substitute for plank and macadamized roads. The rail plates can be made of different forms; the one shown is concave at each side, as shown in fig. 2, thus forming a T rail, only the surface has strong flanges. As cast iron is less subject to oxydation by the weather, the plates can all be made of cast iron, and of one pattern, and every plate will therefore answer for the repair of any part of a track. Besides this, cast plates will be comparativeiy cheap, and the old iron—unlike wood—can be molded and used over and over again. The plates may be cast from five to fifteen inches in width, the latter being for pavements, but united on the chain principle here represented.

The space between the rails can be filled in with any material that is cheap, durable, and easy to the tread of horses, &c. The rails are laid level with the road, thus not affecting its general convexity, and the tracks will act the part of gutters to carry off water, and maintain the road in dry and good condition. It is well known that our common roads are generally very bad, and that good roads would be of immense advantage to our farmers for their teams, in drawing loads to market, or for other purposes. One horse will draw nearly five times more on a railroad than on our common plank roads, and nine times more than on a common road. This chain plate railroad is proposed for common roads to give our farmers the advantages of railroads unannoyed by locomotives.

More information may be obtained by letter addressed to the inventor.

New Board Clamp.

William Devines, of Jamaica, L. I., has invented an improvement in door clamps, for which he has taken measures to secure a patent. The nature of the improvement consists in providing an oblong metallic box, in which there is a pinion worked by a hand-wheel on the outside, which wheel gears with a rack on a cross-head frame, which moves in and out of one end of the box, in correspondence to the direction of force applied to the wheel. On the opposite end of this box suitable clamps and a wedge are attached, in such a manner, that in laying down a board the instrument is fastened by the clamps to a beam, and the cross-head forced against the board by turning the hand-wheel described, thus clamping the board with great power and ease.

Spark Arresters.

An improvement is Spark Arresters for locomotives, has been made by I. P. Magoon, of St. Johnsbury, Vt., which consists in placing over the top of the smoke flue a conical cap piece, against which the sparks impinge as they rise, and then receive a downward impulse, which carries them through a chamber to the lower part of the outside of the smoke flue. Measures have been taken to secure a patent.

Cylindrical Saws for Cutting Staves.

Henry Hays, of this city, has taken measures to secure a patent for a new method of operating cylindrical saws for cutting staves, which consists in hanging and arranging the saw upon friction rollers instead of having it secured upon an arbor. The friction rollers are secured by nuts and screws in a slotted disk, and can therefore be adjusted to accommodate saws of different sizes.

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Scientific American.

NEW YORK, OCTOBER 28, 1854.

Important to Young Men---Small Capitals, and How to Get them.

The history of many of the world's best men, who have risen from poverty to positions of honor and affluence, reveals the interesting fact that it was the possession of *a small cash capital*, in the outset, which enabled them to *start* on that career of success which ever after attended their footsteps. The histories of thousands of men, unknown to fame, who have raised themselves from the daily drudgery of servile tasks, to situations of comparative comfort, attest the same important truth.

We fear that a sad forgetfulness of these examples prevails among the young men of our day. They are too apt to sneer at the idea of "small beginnings," and to indulge their fancies in "higher aspirations." They boast, as if it were a virtue, that they must commence business on a large scale, or not at all.

With such spurious notions, constituting the main spring of all their actions, they soon fall into spendthrift habits; they neglect to economise their small means; they waste their time; they have no fixed purpose; they live from hand to mouth; their reputation for reliability is not good, and when a favorable opportunity occurs, where, by the judicious employment of a small capital—say one hundred dollars—they could commence a profitable business, such individuals are caught without a cent in their pockets or an acquaintance who dares to trust them.

Again, there is a large class of young men who cherish the belief that the times are less favorable now for the successful development of small enterprises than by-gone years.

This is a very great mistake. The opportunities for money-making, especially from small beginnings, are a hundred-fold more numerous now than they were twenty-five years ago.

There is no telling what may be the products now-a-days from even a hundred dollar capital. In our own sphere of business we have known many instances where individuals, by having on hand ready cash, even to a smaller amount than that named, have been enabled to obtain full or partial interests in valuable patents, from which they soon realized large fortunes. Indeed, our own personal experience is a striking example:—it was the happy possession of four hundred dollars—saved up in readiness for the first propitious opportunity—that enabled the senior partner of the Scientific American to enter upon the successful path which he now holds.

Similar incidents are of daily occurrence in every business. They show the importance, to young men especially, of always having on hand, ready for a favorable *start*, a small sum in cash.

The inquiry of many who read these lines, will now be, "how shall we get even a small capital?" We reply, by close economy, by over-work, and especially by pushing through with *energy and perseverance*, whatever the hands find to do.

Just at this moment we can point out a most easy method, whereby any man of spirit may advance his pecuniary resources. In another column we publish a list of liberal cash prizes offered to those who will take a subscription paper in hand and procure subscribers to the Scientific American. The first prize is *one hundred dollars*, and there are, in all, fourteen offers. In addition to these rare inducements to activity, a large discount is also made from the regular subscription price, as will be observed by reading our club rates.

It strikes us that any young man to whom a knowledge of these unusual opportunities come, and who refuses to take advantage of them, on the ground of apparent difficulty or trouble, should not complain if his friends write him down as a dolt, and turn the cold shoulder upon him in times of actual need.

To all who propose to make an effort for the prizes, we would offer a word of advice:—Do not be discouraged because the first man you meet refuses to subscribe.—You must expect many more refusals than acceptances. Let *Perseverance* be your motto. Do not be content with the mere showing of the paper to a few of your immediate friends. Canvass the whole town and country around you. Visit every house; exhibit the work to every individual you meet; explain its many excellencies with care; and make earnest endeavors to increase your list of names. By such a course of procedure you will come off triumphant. You will win a prize worth having, besides enjoying the satisfaction of laboring for a useful purpose. The Scientific American is filled with no hurtful dogmas. Its tendency is to elevate, to improve, and to enlighten every community into which it goes.

Those whose occupations prevent them from going about in the day time, on such errands as we have indicated, might, we think employ a portion of their evenings for the purpose. Far better is it for them to be thus engaged than to spend their evenings in foolish idleness by hanging about the country stores and bar-rooms, to listen and to contribute to the common gossip.

Fur and Silk Hats.

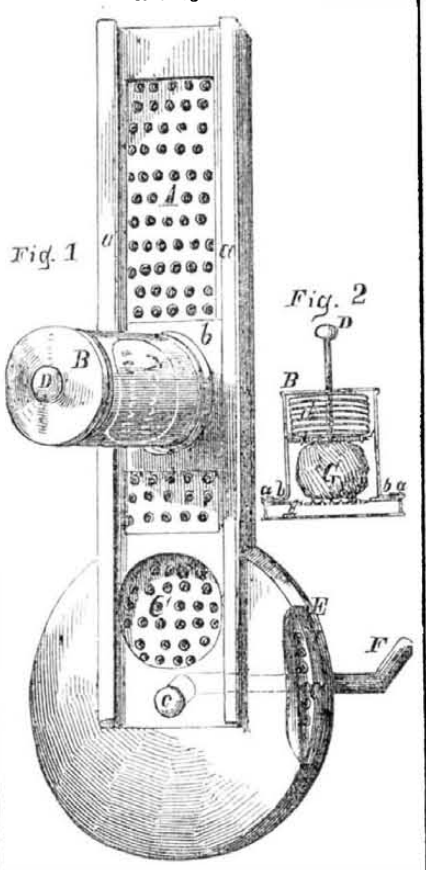
Two years ago we spoke in hopeful terms of what then seemed to be a favorable movement in changing the fashion, from wearing silk to that of wearing felt and fur hats.—But the silk hat, with all its rigid and air-tight qualities, has again assumed such a sway that it is difficult to obtain a good black fur hat, in this city.

Of this we have been assured by a person who cannot wear a silk hat, and who dislikes to wear a felt one. Silk hats are generally made perfectly air-tight, and without an opening in any part of them, they cannot be otherwise. The body of a silk hat is saturated with shellac varnish, on which a silk plush covering is laid, and secured by steam and pressure, thus forming a perfectly air-tight head covering. Now, as the head of man perspires as freely as the other parts of his body, it is necessary for health that the perspiration should escape freely. When prevented from doing so, it is the cause of frequent headaches to many persons, and it is affirmed that it tends to cause early baldness, by the action of the carbonic acid and steam of perspiration upon the hair—a counterpart of the sweating process employed in some tanneries for loosening the hair of hides. It cannot but be unfavorable to health when perspiration is not suffered freely to escape from the head, for if the whole body of any person were encased in a perfectly air-tight covering, existence could not be maintained but for a very short period. There are cases on record of death having resulted in a very short space of time from covering the body with an air tight envelope. We cannot therefore but speak in the strongest terms against the use of air-tight silk hats, and per contra in favor of such kind of hats—like felt and fur—as allow of free head ventilation. If the public persist in wearing silk hats, let them all be properly ventilated, (as some are now so made) so that they may also fulfill the purpose of health as well as head roofing.

Discovery of the North-West Passage.

By the last news from Europe, we learn that Captain R. McClure, of the *Phœnix*,—which was sent out in search of Sir John Franklin, and who last year had made his way so far through the ice, when he was frozen in, as to have reached a point where he communicated with vessels from the other side, has, after being locked up all winter, found his way out, and returned home. He will no doubt be highly rewarded for the feat which he has performed, but, after all, what benefit will the North-west Passage be to navigation after it has been discovered? No benefit whatever. And is this all that has been obtained by the desperate efforts made to accomplish such a discovery, and the lives and treasure squandered in the attempts? It is believed by some that there is an open polar sea—a great ocean basin—at the North Pole; but suppose there is, it never can be of any benefit to commerce; it is so wedged in with fields of ice that it has not been possible to enter it yet, and if it were entered, the difficulty would be to get out again. If there is an open polar basin, it would afford evidence of the correctness of Lieut. Maury's theory, of the winds from the equator meeting and turning round at the poles.

Nutmeg Grater.



The engraving, figure 1, is a perspective view, and figure 2 is a section of an improvement in nutmeg graters, for which a patent was granted to Wm. Bradley, of Lynn, Mass., on the 25th of July last.

A is the grater, which is formed with two ledges, *a a*. B is a small cylindrical box which is made with flanges, *b b*, at its inner end, to slide in the grooves of the ledges, *a a*, like the sliding lid of a box. G, fig. 2, is the nutmeg placed in this box, and *d* is a coiled spring contained in the box, B, to which is attached a handle, D. The box, B, is, with the nutmeg, G, placed in the grater, as shown in fig. 1, and the tension of the spring, *d*, presses it (the nutmeg) against the face of the grater, so that by sliding B from end to end rapidly, the nutmeg is soon reduced. The tension of the spring, *d*, thrusts down the nutmeg as it is reduced in size. The handle, D, is for drawing back or compressing the spring to allow a new nutmeg to be placed in the box. By bringing forward the nutmeg box, B, over the circular opening of the rotary grater, E, which has an interior perforated plate, C, and a handle, F, for rotating the rasping disk, the nutmeg can be reduced very rapidly.

The claim for this improvement is as follows: "I claim the combination of the box or holder, and its pressure spring with the rasping surface of the grater, when the whole are applied and made to operate together as specified." This improvement is applicable to more purposes than rasping nutmegs, and can be applied to different forms of graters. It is also far more convenient than the common kind, which requires the nutmeg to be held in the hand against the grating surface.

More information may be obtained by letter addressed to the patentee at Lynn.

The San Jacinto Again.

This unfortunate American steam frigate, after having made what was termed "a very successful voyage across the Atlantic," put into Southampton, from which place she recently departed to the Baltic Sea, as we learn by foreign papers, but had to return before she cleared the coast of England, having broken one of the blades of her screw. It is greatly to be regretted that the machinery of nearly all our steam frigates has proved to be so bad. It makes us ashamed of some of our engineering establishments. We hope they will hereafter reform their ways.

More About the Arctic.

Since the last number of the Scientific American was issued, Captain Luce has arrived in this city, and his account of the loss of the *Arctic*, with the accounts of several others who were saved, have been published, so that we now have all the information that can be obtained respecting that sad accident. There are still two boats which left the *Arctic* unheard from; one reported to contain several passengers, and the other those engineers who conducted themselves so disgracefully. Out of more than a hundred who have been saved there is not a single female. This has blackened the character of our marine in the eyes of the whole world. Captain Luce, we think, acted injudiciously, so far as relates to the head, but nobly as it relates to the heart—he scorned to desert his post, and went down with his ship. His crew, in their burly strength, deserted him, and trod down the weak and helpless, leaving them to be engulphed beneath the deep waters. This conduct meets with the scorn and contempt of all men. Captain Luce committed the fatal mistake of leaving his chief mate—an able officer—behind, whom he sent out in a boat to assist the propeller. He possibly could have lost nothing by the delay in taking him up; perhaps it was by running away and leaving him that so much has been lost. We hold the same opinion as we expressed in the Scientific American of last week, respecting what might have been done under the circumstances by good management, viz., that all on board might have been saved:—but it is quite another matter, we admit, to sit by our firesides calmly, with the result and the facts in detail before us, and think what we should have done in such an emergency, than to have been in the midst of those trying and exciting scenes.

The vessel was struck at mid-day, the sea was calm, and she floated for four hours afterwards. If all the officers and crew had done their duty, and had not acted like selfish craven cowards, they had plenty of time to make a large strong raft, which, with the boats at command, could easily have carried every soul on board.

We also blame the Company—those whose duty it was to see that there were plenty of life boats on board to have carried all—for not having made such provision for saving life in such cases. The crew knew all this; and had the *Arctic* been provided with a plentiful supply of life boats, we are of the opinion that they would not have seized all that were on board, and deserted their posts. The *Arctic* neither employed an alarm bell nor used her whistle, although running at full speed, therefore, while we much blame those of the crew who acted so traitorously to duty and humanity in deserting the ship, we must not overlook the main primary causes of this great loss of life.

The new clipper ship *James Baines*, built by D. M'Kay, of Boston, for the Black Ball Line, has arrived at Liverpool, after an extraordinary run of 12 days and 6 hours. Capt. M'Donnell said that had the winds been favorable he could have made the run in eight days.

$570 IN PRIZES.

The Publishers of the Scientific American offer the following Cash Prizes for the fourteen largest list of subscribers sent in by the 1st of January, 1855.

$100 will be given for the largest list,
$75 for the 2nd, $35 for the 8th,
$65 for the 3rd, $30 for the 9th,
$55 for the 4th, $25 for the 10th,
$50 for the 5th, $20 for the 11th,
$45 for the 6th, $15 for the 12th,
$40 for the 7th, $10 for the 13th,
and $5 for the 14th

The cash will be paid to the order of each successful competitor; and the name, residence, and number of subscribers sent by each will be published in the Scientific American, in the first number that issues after the 1st of January, so as to avoid mistakes.

Subscriptions can be sent at any time and from any post town. A register will be kept of the number as received, duly credited to the person sending them.

☞ See new Prospectus on the last page.

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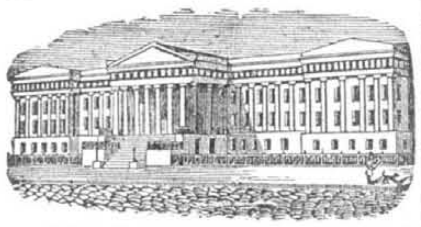

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING OCTOBER 17, 1854.

LOOMS FOR WEAVING CUT PILE FABRICS—E. B. Bigelow, of Boston, Mass. Patented in England Dec. 31, 1851 : I claim, first, the method of adapting the cutting knife to the proper position relative to the wire to be cut out, under the varying conditions of the loom, by making the frame or carriage which supports or carries the said cutting knife movable, substantially as specified.

I also claim, in connection with said movable frame or carriage which supports or carries the cutting knife, a guide or guides to rest against the wire to be cut out, to preserve said frame or carriage and cutting knife in a proper position relative to said wire, substantially as specified.

I also claim connecting the cutting knife with the reciprocating bar, by means of a double-acting or compound joint, substantially and for the purpose specified.

I also claim in combination with the reciprocating bar, or its equivalent, with which the cutting knife is connected, the employment of a guide which shall move in unison with said cutting knife to insure its proper position relative to the wire to be cut out, substantially as specified.

And, finally, I claim the method of preventing the wires from being drawn down on their sides by means of hooks or bars, substantially as specified.

POWER LOOMS—J. T. Barnes, of Manayunk, Pa. : I claim, first, fitting the journal boxes of the crank shaft to slide on ways on the framing upon which, when liberated by reason of some obstruction in front of the reed, they are capable of being drawn back to carry back the crank shaft from its operative position, and prevent the further advance of the lay by springs or their equivalents, substantially as set forth.

Second, setting free the journal boxes of the crank shaft from the hooks, or their equivalents, which hold them in proper operative position by means of a rock shaft or roller hung in bearings in rear of the breast beam, or otherwise conveniently placed near the front of the loom, said shaft or roller having attached to it a bar, which is conveniently placed for the breast beam to pass under it, and for the shuttle when the latter is arrested in front of the reed, to be driven against it and drive it forward, and thereby throw up two arms, which are also attached to the shaft or roller, and cause the latter arms to set free the journal boxes of the crank shaft, and allow them to retreat and carry back the shaft, substantially as set forth.

Third, furnishing the crank shaft with cams which, when the loom is started with the shaft thrown back, work in contact with fixed pins or projections on the loom framing, and throw the shaft and its journal boxes forward to their operating position, as described.

MACHINERY FOR TRIMMING HAT BODIES—Daniel Barnum, of New York City : I claim, in combination with the pick or brush and perforated cone or former, the employment of currents of air at the bottom and sides, substantially as described, to guide and direct the deposit of fur on to the cone or former, as described.

I also claim the employment of a form made of grass cloth or other flexible material pervious to air, on which to deposit the fibers in forming the bat, and to be taken from the perforated metallic cone or former with the bat, and retained inside as an "inlayer" during the after process of hardening, as set forth.

And, finally, I claim the employment of an india rubber cap to be put on to the bat of fur to hold the fibers together in taking off the bat from the perforated cone or former, and to facilitate the hardening of the bat in the dry state, substantially as specified.

WATER METERS—J. D. Elliot, of Leicester, Mass. : I claim the combination of the measuring chambers or reservoirs with the cock, substantially in the manner and for the purpose described that is to say, so that a measured quantity of water, shall be let in and drawn off at each and every turning of the cock.

I also claim, in combination with the cock and reservoirs, the register made to operate substantially as described.

I also claim, in combination with the reservoirs, the air passage with its float or equivalent valves, for the purpose of forming a governor to receive and discharge the water under the same head, as set forth.

SMOKE-CONSUMING STOVE—E. A. Hill, of Joilet, Ill. : I do not claim the construction of a furnace for steam boilers with two grates or fire chambers, supplied alternately with fuel, and passing the unconsumed smoke or carbonic oxyd of one fire through the red-hot coals of an adjacent one.

Neither do I claim a stove or heating apparatus constructed with two grates or fire chambers supplied alternately with fuel, and passing the unconsumed smoke or carbonic oxyd of one fire over the red-hot coals or blaze of the other.

But I claim, first, the combination and arrangement of the smoke passage, damper, and draught flues, substantially as described, for the purpose of conducting the unconsumed smoke or carbonic oxyd through completely ignited coals, in a simpler and readier manner than has been done before, as set forth.

Second, I do not claim the pipe for the purpose of ventilating the room ; but I claim the combination of the draught flues, in combination with the pipe, for the purpose of supplying the stove with the necessary quantity of air, to insure the complete combustion of the fuel, or for preventing the smoke smothering the fire, substantially as set forth.

SHOEMAKERS' EDGE PLANES—D. W Horton, of Petersburgh, Ind. : I claim the combination of the guard with the head and the blade, in such a manner as to form a sole and heel edge plane that is adapted to the use of the right or left hand, substantially as set forth.

IRON BUILDINGS—B. J. LaMothe, of New York City : I claim, first, the construction of the frame or skeleton of buildings with bands or plates of iron or steel or other metal riveted or screwed together in sets of several parallel bands, the same extending from the foundation to the top of the structure in lieu of columns, pillars, or walls.

Second, I claim the making of the beams for the floors, and the rafters for the roof, by bending a certain number of the parallel bands which have been used in the perpendicular walls below to the required position to serve as beams and rafters, the same being strongly riveted or screwed together.

Third, I claim the vertical continuous beam, constructed of several parallel plates strongly riveted together, and also the combination of the horizontal and vertical beam of parallel plates, as shown.

GRAIN AND GRASS HARVESTERS—John H. Manny, of Freeport, Ill. Ante-dated June 15, 1854 : I claim the arrangement of the platform, obliquely to the cutter, so that the gavels of cut grain will be discharged at a sufficient distance from the standing grain to leave a clear pathway between the two for the team to travel in.

I also claim the combination, with the platform, of a wing to facilitate the gathering of the grain, as described.

I also claim making the outside dividing finger hollow, so that while it affords sufficient room for the play of the end of the sickle, the bearing of the latter thereon will not be so wide as to afford a lodgment of gum, grass, &c., and render it liable to be clogged thereby.

GRINDING SURFACE IN MILLS—Chas. Ross, of Rochester, N. Y. : I claim the forming of a grinding surface in mills by lining a cast-iron concave with radial segments of burr or other stone, said segments being fitted and secured to their places in the manner set forth.

ROVING TUBES—Moses Sargent, of Meredith, N. H. : I claim combining with the common trumpet-mouthed roving tube one or more hooks, so as at all times to secure the condensing of the roving while unbroken, and permit a broken roving to be pieced without stopping the machine or even a single tube, in the manner substantially as set forth.

SAWING MACHINE—John J. Squire, of St. Louis, Mo. : I do not claim constructing a saw with a beveled or taper side, for they have been previously used, and strengthening their saws by this means, or by securing plates to them is well known.

Neither do I claim the feed rollers, irrespective of their arrangement and connection with the frame.

I claim, first, the employment or use of the radius guide, constructed, arranged and applied to the saw, substantially as described, for the purpose of controlling the same and preventing any tremor thereof.

Second, I claim placing the feed rollers in a movable or sliding frame, constructed and arranged as set forth, for the purpose of gauging the stuff to be sawed and properly presenting said stuff to the saw, and guiding it while being sawed.

WATER PIPES—R. B. Stevenson, of York, Ohio : I claim the combination of pipe of sheet zinc or other suitably cheap and durable sheet metal, and an exterior coating of said hydraulic cement mortar of requisite thickness for strength, durability and impermeability for conveying water or other fluids, beyond the action of frost from one point to another.

The same mode of construction may be applied to casing wells, conveying fluids or other purposes of the same nature.

ENAMELING IRON—C. F. Thomin and Chas Stumer, of Cincinnati, Ohio : We do not claim applying the powdered frit to a previous coating of enamel paste while the latter is moist, such a process having been long in use.

But we claim treating the cleansed surface of the sheet or wrought metal to be enameled with a mucilage or viscid solution, and powdering or otherwise evenly distributing the pulverized frit thereon.

JOINT FOR TOILET GLASS—Henry Wayne, of Cincinnati, Ohio : I claim the vibrating bracket having a segmental wing with tapered indentations and spring pawl, or their equivalents, in combination with the horizontally rotating pivot, as described, forming a shifting joint for a toilet glass.

BRICK PRESSES—E. D. Williams, of Wilmington, Del., and T. Tyrrell, of York, Pa. : We claim, first, the employment, placed between the mechanism which produces the first and that which produces the final pressure of a perforating apparatus, consisting of a number of pins which are protruded through the bottom of a box, or its equivalent, and which is otherwise arranged and operated substantially as described, to perforate or prick the partly pressed clay to allow of the escape of air which may be continued therein before the final pressure, as set forth.

We do not claim giving to the revolving mold wheel a movement in the direction of the line of its axis, for the purpose set forth.

But we claim, second, the particular method described of giving the said movement by means of the loose collar fitting to the shaft, and having prominences and depressions corresponding to similar depressions and prominences on a fixed collar, and having projections on its sides to come in contact with spring dogs attached to the framing, the whole combined, arranged, and operating as set forth.

IRON BRIDGE—John Yandell, and Joseph H. Johnson, of St. Louis, Mo. : We do not claim the use of anchor chains or suspension cords, as they have long been known and employed for bridging purposes.

Neither do we claim any one of the several parts where they are considered as separate and apart from the other parts.

But we claim the peculiar mode of connecting together all the several parts as they are employed in the tension tress work, and also as the mode of combining the same with suspension cables, substantially as set forth.

VESSELS FOR HOLDING LIQUIDS—J. H. Stimpson, of Baltimore, Md. (executor of Jas. Stimpson, dec.) Ante-dated April 17, 1854 : I do not claim the double wall as a means of intercepting heat. Nor do I intend to claim such a devices applied to any structure or vessel whatsoevar, for the purpose of economizing in ice, unless attended with all the advantages and results of my double wall ice pitcher.

It is obvious that refrigerators, urns, tumblers, double plates, and such like articles, occupy especial positions in household economy, and distinct from my double pitcher, and that no one of them can be made to subserve all its purposes and ends, and I therefore disclaim them, one and all, and confine my claim to the double wall pitcher.

It is obvious that the lid, from its small surface and position in reference to the circulation of heat may be made single with comparatively small loss, but I prefer to make it double, as set forth.

I claim, therefore, the double wall pitcher, the same consisting in a pitcher with double sides, double bottom, and a hinged cover, from which the liquid contents are to be poured through or over the nose or lip, substantially as set forth.

I am aware that a lever has been used upon the covers of molasses pitchers for raising the covers, and this I do not claim. But I claim the employment of a chain or string attached to the handle and lid of the pitcher, as described.

PEN AND PENCIL CASE—John Richardson, of New York City : I claim the operating sleeve, having a turning as well as a sliding movement, in combination with the pen and pencil holders, and the interior mechanism, as described.

I make no claim to merely combining a pen and pencil in the same case, so that either can be protrnded and retracted at will, as this has before been done by other means.

RE-ISSUE.

SMUT MACHINES—John Hollingsworth, of Zanesville, O. : dated Oct, 10, 1854 : I claim the manner described of scouring and freeing wheat of smut and other impurities, by throwing the mass out of the concave at each revolution of the beaters, and against the inclined or curved face of a chimney fitted to an opening at or near the top of the concave for the purpose of permitting the dust, smut, &c., to pass out, whilst the wheat is returned back into the machine for a second operation, substantially as described.

I also claim, in combination with the concave, the adjustable inclined aprons for conveying the grain through the concave as it is successively returned back into the machine, substantially as described.

ADDITIONAL IMPROVEMENT.

MACHINERY FOR POLISHING RAW HIDE WHIPS. Originally patented May 21, 1850 : I claim the combination of the endless belt with the bearer, as described, for smoothing and polishing raw hide whips, the operation being as set forth, said bearer furnishing the facility for examining the progress of the operation.

DESIGNS.

FRANKLIN STOVE—William Reser, of Cincinnati, Ohio.

CLOCK CASE FRONTS—Charles Chinnock, of New York City. (Three designs.)

COOKING STOVE—Wm. P. Gray (assignor to Cox, Hagar & Cox,) of Philadelphia, Pa. : I claim the design represented of the stove "Atlantic."

[NOTE—We should judge from the length of the above list that the Patent Office is not over-crowded with business. It is therefore an excellent time to make application, as there is not so much probability of delay in examination. Five patents in the above list were secured through the Scientific American Patent Agency. Inventors who employ us should forward their models by express.

Flouring Mill.

Improvements in the machinery and apparatus for manufacturing flour are still objects to which no small amount of attention is directed, although a great number of patents have been secured for such purposes. Another improvement in flouring mills has just been made by John L. Yule, of New Orleans, La., for which he has taken measures to secure a patent. It consists in attaching the upper stone to a swing-frame, by a universal joint, and having the spindle of the lower or runner stone made adjustable, and easily graduated, so as to be set to grind to any required fineness, preserving at the same time the parallelism of the faces of the two stones perfectly. The upper stone can be elevated and depressed with great ease and facility on its frame. Mr. T. also operates the shoe of the hopper in a peculiar manner, by which the eye of the upper stone is not encumbered with a damsel, and consequently a smaller eye may be employed, and the grain acted upon nearer the center of the stone.

From the Swanton (Vt.) Herald.

An Arkansas Invention

OR, HOW THE GENERAL "*sold*" THE EDITOR OF THE SCIENTIFIC AMERICAN.

About the commencement of the present decade we had the honor of being one of an illustrious trio who originated and controlled a Democratic newspaper, named the *Arkansaw Traveler*, published at the flourishing town of Camden, Ouachita Co., Ark. We numbered among our exchanges the SCIENTIFIC AMERICAN, valuable, then, as now.—Among our patrons in Camden was one General Tom Woodward, a shrewd old gent, full of anecdotes, an inveterate practical joker, a good judge of "rye" and, to cap the climax of his convivial accomplishments, was great on the "Arkansaw Traveler," (a celebrated dancing tune with a legend.) One sultry day in the summer of '50, the General walked into our printing office, picked up the SCIENTIFIC AMERICAN, and commenced reading the Editor's "Notice to Inventors,' in which he offered his services in the obtaining of patents for useful inventions, &c. After reading it through, the General requested pens and paper. The stationery was placed before him, and in a few moments he had written his letter, sealed and superscribed it to Munn & Co., N. Y., and our devil was despatched to the post office with it. We "smelt a mice," but said nothing. The next time the *Scientific American* came we eagerly opened it, and there, sure enough, among the "notices to correspondents," was the following :

"T. W. of Camden. Ark.—Musical inventions, if of real benefit, and not too costly, generally prove lucrative to the inventor.—We cannot inform you as to the practicability of obtaining a patent, until you send us a model, or an accurate description of the instrument."

This paragraph we read to the General the next time we saw him ; for our politeness in the matter, he permitted us to read his description of the wonderful instrument previous to its being despatched to the SCIENTIFIC AMERICAN ; it was as follows :

"Dear Sir : By your request I will, as briefly and clearly as I can, endeavor to describe my new musical invention. It has very much the appearance, at first sight, of a case for a huge, double-action harp ; from six to eight inches square at the smaller end, thence gradually expanding to four feet square ; one side perforated with auger holes. The inner compartments of the instrument are occupied by swine—from the four week's roaster at the little end, ranging gradually up to the eight year old male grunter—the tails of all protruding through the before mentioned augur holes. The performer stands upon the outside of the instrument with a couple of blacksmith's pincer's in his hands ; he has thus full command of the machine, and a practiced hand can run the chromatic scale in a most brilliant manner. You will at once perceive that my invention is a valuable one, combining immense volume of tone with an almost unlimited power of expression, and vast compass—from the shrill soprano of the infantile porker, down to the deep "peddler base," as Mrs Partington expresses it, of his more aged ancestor—thus including ever so many octaves. By prolonging the pinch the tones can be prolonged indefinitely, thus doing away with the Æolian Dolce Campana, and other attachments, (including the sheriff's). I have not decided yet whether to call my invention the "Swinett" or the "Piganna." Your advice upon this subject, together with your assistance in obtaining a patent "according to Hoyle," will be gratefully taken by

Yours truly,

THOS. WOODWARD.

Munn & Co., Eds. SCIENTIFIC AMERICAN.

The next week's AMERICAN contained the following paragraph :

"T. W., Camden, Ark.—Your description of new musical invention has come to hand. We think it patentable, and on receipt of the usual fee will endeavor to obtain the desired patent. We have no doubt but that you can make the invention 'pay,' as it fills a desideratum which must have been long felt in the refined locality of Arkansas. If the aged swine which forms the *base* of your "Piganna," should, accidentally, not be procurable, we would recommend the inventor to fill his place ; indeed we know of no one more admirably adapted by nature and education to the position, for in the whole course of our editorial experience we were never bothered with the lucubrations of a more unmitigated *bore*."

That last shot prostrated the General ; he treated all hands to water-melons to keep the joke to ourselves. If any one is disposed to dispute the authenticity of the above, he can have his doubts dissipated by enclosing $2, post paid, to Munn & Co., of the SCIENTIFIC AMERICAN, or to James A. Warner, Editor of *Young America*, El-Dorado, Ark.

Cholera Symptoms.

Dr. McLoughlin has sent a communication to the Registrar-General of England, stating that in 1848, 3,602 cases of cholera were examined into, and not one was found where the disease had come on without being preceded by diarrhœa. Dr. McL. has also written a letter to Dr. Mott of this city, dated in December last, in which he says that in 600 deaths which had taken place in London during the preceding four months, not one had occurred without the previous existence of diarrhœa, which had lasted from some hours to several weeks.

New Water Plant.

A new water plant, named water thyme by the people, and *Aanacharis alsinastrum* by the discoverer, has appeared in some of the English rivers and canals, within a few years, in such abundance and strength as to threaten obstruction to navigation.

TO CORRESPONDENTS.

E. A. H., of ——.—The best work on gearing that we are acquainted with is Scott's *Engineer's Assistant* ; it is for sale by Blackie & Son, Fulton street, this city : its price is either $20 or $24. If you communicate with the firm you will obtain the information desired.

J. W., of West Troy, N. Y.—House's Telegraph is illustrated and described in Dr. Turnbull's work, published by A. Hart, Philadelphia.

J. P., of Ohio—Yours will receive attention.

R. S. A., of Washington—We will consider your request : we are only afraid that by complying with it, a great number would thoughtlessly give us trouble by requesting us to be purchasers for them.

E. Q. F., of Chicago—It appears to us that locomotive boilers might be easily encased with plaster of Paris ; this has been done with other steam boilers and is not patentable.

T. C. H., of N. Y.—India rubber can be dissolved by stirring it in turpentine in a close vessel for some days ; if the vessel be kept warm the operation will be expedited.

J. H. K., of Va.—We understand your plan, but you cannot obtain the results you contemplate. There is no axiom better established in mechanics than "action and re-action are equal."

C. N., of Tenn.—We do not know where you can get a circular solid sheet of asbestos in this city, such a thing, so far as we know, cannot be obtained.

J. J. W., of Tenn.—We are much obliged to you for your favor.

B. B., of Md.—We cannot advise as to what you can do with your invention in this State ; a good cheap mill ought to sell.

T. S., of N. Y.—There is, we think, a firm in Fall River, Mass., engaged in making Sharp & Robert's mules, cannot give their names.

E. C., of Md.—Be very particular about your model ; we cannot encourage you to build one above the size specified by the office—a cubic foot.

S. H. S., of Mo.—Models cannot be recovered from the Patent Office on rejected applications ; all models are retained by law.

G. P., of Md.—Coke is a far better non-conductor than tan bark, but it should be reduced to very minute pieces ; if you use tan bark it should be dry.

O. E., of Mass.—We do not think that the rollers you speak of would infringe the Woodworth patent, as they, according to your statement, must be peculiarly constructed, and not used simply as pressure rollers.

N. & W., of Ct.—We have endeavored to find something respecting the perfect coating of steel and iron wire with copper, but have not been able to obtain it. We publish in this number of the SCI. AM. a table of French weights reduced to the English standard.

A. H., of N. Y.—We are obliged to you for the sample of colored worsted ; it is a tolerable black. From your comments, we are of the opinion that its durabitity depends on the mordant used. We will try and give the subject more attention. We will attend to your other matters.

J. W. Frost, Indianapolis, Ind.—Wishes to know where he can procure machines for making pill boxes, and also the pills for the boxes. Some of our readers can inform him.

Dr. C. C. G., of Ala.—We are unable to give the information you desire about the mill. Emery & Co., of Albany, N. Y., could, we think.

G. A., of Ct.—We do not know where a letter would reach Mr. Ewbank. Since his withdrawal from the Patent Office he has been a very private personage.

J. D., of W.—The idea of using the pressure of the boiler to feed in the water, without pump, is not new. Several contrivances wherein this principle is embodied are in existence. A new combination of parts for the purpose could be patented ; your combination is so imperfectly described that we cannot determine as to its patentability.

E. E. D., of Md.—We have examined the sketch of your device for operating window blinds by means of cog gearing ; it contains no patentable feature—we have used the same thing.

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C. R., of La.—We find no patentable feature in your "pantaloon leg tree;" similar contrivances are in use for the same purpose.

A. P. B., of Vt.—A screw jack, embracing the features claimed by you, are covered in a patent granted to Francis Davis May 9th, 1854, therefore it will be useful for you to make an application.

J. K., of Mass.—Your perpendicular planer is essentially like the Bramah wheel, which is one of the earliest improvements in that class of machines.

R. E., of N. Y.—The machine to which you refer is but a sorry specimen of the progress of the arts; it cannot operate satisfactorily, and we would not advise you to spend time and money upon it.

A. E., of Me.—We wrote you on the 18th ult., and cannot tell why you have not received our letter: inquire at the post office again.

R. B., of N. J.—Messrs. Deering & Dederick, of Albany N. Y., make excellent hay presses; price not known.

Secy. of Big Spring L. Institute, Pa.—Compound Subtraction is taught upon erroneous principles, by compounding the character of the quantities; you see by the example you have sent. For the correct method and explanation of the error, we refer you to any work on algebra.

Josiah Abbott, Northfield, Vt.—Wishes to procure a machine for turning wooden ware.

C. E. G., of Geo.—On page 372, Volume 7 SCIENTIFIC AMERICAN, you will find an engraving of a straw cutter substantially the same as you describe.

C. M., of Pa.—We are not acquainted with any flexible article that is a non-conductor of sound when exposed to the atmosphere.

R. B. D., of Mass.—Your inquiry in reference to ascertaining the increase or decrease of caloric in a given quantity of matter, is not an easy question to answer. It was up some years ago, and not answered we believe.

L. C. A., of Va.—The great bell at Moscow was cast by order of Anne, Empress of Russia, and weighed 432,000 lbs. The seven great bells at Pekin, China, are said each to weigh 120,000 lbs. It is over 1400 years since bells were first invented, and the improvements in their form and composition had not attracted much attention until late years. Very heavy bells are not so much used now as in former years.

S. P., of Ct.—We have known of instances where adhesion had taken place between a safety valve and its seat, and we presume explosions may have taken place from it, but of late years we do not remember any such thing having taken place.

J. E., of Pa.—If the invention to which you refer contains no patentable novelty, the application will be rejected by the Commissioner of Patents.

E. S. T., of Tenn.—As we have had nothing to do with your case, the office would not correspond with us in regard to it. You had better write to the Commissioner about it.—He will advise you whether the caveat was received or not.

S. & B., of Ct.—By reference to page 402, Volume 8 SCIENTIFIC AMERICAN, under the notes on the Crystal Palace Exhibition, you will find a substitute for turn tables described. The same thing has been used on the Harlem Railroad for ten years.

R. K., of Mass.—Whatever you cover in your patent will not be affected by the title. The title is of very little consequence in this country, but everything in an English patent.

A. Y., of Ohio—We have carefully examined the sketch o your improved grinding mill, and we think it is worthy of being patented. Send on a small model of it and we will proceed with the case at once. The case will not remain in our hands over six days after the model is received.

A. P. C., of N. Y.—Keeping a clock pendulum in motion by a magnet is not patentable.

Money received on account of Patent Office business for the week ending Saturday, Oct. 21:—

L. K., of N. Y., $10; H. Y., of O., $30; C. W. B., of Me., $25; E. G., of Vt., $25; H. J. B., of Pa., $25: I. J. C., of N. Y., $35; M. F., of N. Y., $32; W. I. C., of N. Y., $60; W. J. F. L., of Pa., $30; C. E. R., of N. Y., $20; S. K., of Pa., $10; E. V., of O., $25; O. S., of La., $25; J. K., of L. I., $25; F. B. H., & Co., of Ind., $15; S. H. S., of Ark., $20; B. & V., of Mass., $30; J. S. H., of Mass., $25; I. J. W. A., of Md., $30; J. M. S., of N. Y., $40; A. F., of N. Y., $30; J. R., of N. Y., $32.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Oct. 21:—

J. A., of N. Y.; E. G., of Vt.; C. W. B., of Me.; M. C. M., of D. C.; H. S. B., of Pa.; J. F., of Pa. (2 cases); J. W. P., of Mich.; J. R., of N. Y.; E. V., of O.; O. S., of La.; J. M. S., of N. Y.; R. P. B., of N. Y.; J. H., of Mass.; F. B. H., and others, of Ind.; J. K., of L. I.; I. J. C., of N. Y.

LITERARY NOTICES.

LIFE ILLUSTRATED—A new first-class weekly newspaper, under this title, has just been commenced by those enterprising publishers of this city, Messrs. Fowlers & Wells. Their monthly publications, the *Phrenological Journal* and the *Water Cure Journal*, enjoy a very high degree of popularity; and we cannot doubt that a similar success awaits the progress of *Life Illustrated*. The new paper is of large size, of faultless typography, and full of beneficial reading. Almost every branch of human knowledge, from the science of Phrenlogy to that of practical agriculture, is treated of by able writers. *Life Illustrated* will prove a welcome visitor wherever it goes. Office 308 Broadway, N. Y.: $2 a-year.

SOUTHERN QUARTERLY REVIEW—The number of this able periodical for October is the last of the present volume, and has been printed in Columbia, on account of the yellow fever in Charleston, S. C., its place of publication. It completes the tenth volume of the new series, and contains nine original articles, not including minor critical notices. The first is on the Unity of the Human Race, in which the author (A. L.) comes to the conclusion that man must have existed on the earth for chiliads of years, or that there were separate creations of different types of mankind. The Review is characterized by keen logic and originality. Published by C. Mortimer, Charleston, S. C.

SOIL OF THE SOUTH—This is the title of an agricultural and horicultural journal, published at Columbus, Geo., on the first of each month, at $1 per annum.

PROGRESS OF PREJUDICE—Is the title of a new work by Mrs. Gore, just issued by Dewitt & Davenport. Mrs. Gore is the well-known author of "The Banker's Daughter," "Mothers and Daughters," "Preferments," etc., and occupies a high distinction as a writer. The work before us is one of her best productions, and will repay perusal.

The Constitution of the United States, with all the Acts of Congress relating to Slavery, including the Nebraska and Kansas Bill, carefully compiled from public documents. A pamphlet containing the above useful information, has just been issued by D. M. Dewey, Rochester, N. Y.; price 15 cents.

THE INEBRIATE'S HUT—Or, the first fruits of the Maine Law, is the title of a thrilling Temperance tale, from the pen of that gifted authoress, Mrs. S. A. Southworth. No one can rise from a perusal of this work without deeper convictions of the importance of that noble project which the friends of Temperance are now striving to realize in all our States, viz.: Total Prohibition. The book is handsomely illustrated. J. C. Derby, publisher, N. Y.

Terms of Advertising.

4 lines, for each insertion,	$1,00
8 " " "	2,00
12 " " "	3,00
16 " " "	4,00

Advertisements exceeding 16 lines cannot be admitted, neither can engravings be inserted in the advertising columns at any price.

☞ All advertisements must be paid for before inserting.

WANTED—A New or Second-hand Foundry Crane—must be in good order, and capable of raising six tuns. State price delivered on the wharf at Brooklyn, or address J. STUART GWYNNE, 13 Greenwich street. 1*.

CERTIFICATE—I certify that I have bought and used A. Belchambers' method of Drawing Scrolls, and would recommend the same to all mechanics and scientific men, as being the most simple and correct method of drawing scrolls in use, the knowledge of which I would not be without for any consideration. Wm BOYLES Millwright and Machinist, Brown Co., O.

Full instruction as per former advertisement in the Sci. Am., sent upon the receipt of $1. Address A. BELCHAMBERS, Machinist, Ripley, Brown Co., Ohio. 1*

TROFATTER'S IMPROVED WELT Machine—The best, cheapest, and most durable Machine in use. It cuts to the width, and splits from corner to corner at one passage through. It will make a set of 60 pairs from the whole stock in ten minutes, without any waste of stock. Size of Machine, 11 by 16 inches. Price $15. Right for any State except Massachusetts, $300.—S. J. & C. H. TROFATTER,
1* 4 Beaver Street, Salem, Mass.

LIFE ILLUSTRATED—A new first-class Weekly Newspaper, devoted to News, Literature, Science, and the Arts, to Entertainment, Improvement, and Progress. To embrace every human interest, and to supply aliment to every mental faculty, is its aim.—Bound to no theory or party, but seeking the highest interests of all; advocating whatever tends to promote the physical, intellectual and moral good of man, but exposing evils and their causes, it shall merit, and, we hope, command, a world-wide circulation and influence. It will point out all available means of profit and comfort, and especially expound the laws of Life and Right, including the normal exercise of all our powers, besides encouraging in all a spirit of hope, manliness, and self-reliance. A large folio sheet of excellent paper, with twenty-eight columns of new type, printed in a superior manner, at $2 a-year. Published by
7 4 FOWLERS & WELLS, 308 Broadway, N. Y.

MACHINERY—S. C. HILLS, No. 12 Platt st., N. Y., dealer in Steam Engines, Boilers, Planers, Lathes, Chucks, Drills, Pumps; Mortising, Tenoning, and Sash Machines Woodworth's and Daniel's Planers; Dick's Punches, Presses and Shears: Cob and Corn Mills; Harrison's Grist Mills; Johnson's Shingle Mills; Belting, Oil, &c. 7 e3w

1854—**MICHIGAN CENTRAL R.R. LINE** D.W. WHITING, Freight Agent, and also General Forwarder, having been a practical machinist, is prepared with skill and implements to handle and ship by any line, all kinds of machinery and manufacturers' wares. Mark plainly, care D. W. WHITING, Buffalo, N. Y. 7tf

BUFFALO MACHINERY DEPOT—Terrace St. and 36 Lloyd st., Buffalo; J. W. HOOKER, Proprietor, H. C. Brown, Superintendant, offers for sale Machinists' tools of all kinds: Engine Lathes, Planers, Drills, Chucks, Boring Mills; also machinery of all kinds on hand or furnished to order. 7tf

100 HORSE POWER ENGINE, $2800; four 18 feet Screw Cutting Engine Lathes, $400 each; 2 four-horse, and 2 eight-horse power Engines, by J. W. HOOKER, Buffalo Machinery Depot, Terrace st., and 36 Lloyd st., Buffalo, N. Y. H. C. BROWN, Supt.
7 3

TO EXHIBITORS—All applications for space to exhibit in the French Palace of Industry, in 1855, should be addressed to the undersigned before the 15th of November next. S. H. WALES,
Commissioner for the State of New York.
Office Scientific American, New York City.

DICTIONNAIRE TECHNOLOGIQUE Francais-Anglais-Allemand, redige d'apres les meilleurs ouvrages speciaux des trois langues, donnant avec leurs diverses acceptions et applications, tous les termes techniques employes dans les arts industriels et dans la mecanique, la physique et la chimie manufacturieres; suivi d'un tableau comparatif des monnaies, poids et mesures, Francais, Anglais, et Allemands. Par MM. Tolhausen et Gardissal. New York, chez MUNN et CIE, 128 Fulton Street. Prix, $1,31

THE STAIR BUILDERS' GUIDE—By Cupper, now ready; price $6. By remitting, the book will be sent by mail or express to any part of Canada or the United States. W. GOWAN, 178 Fulton street. 5 3*

OIL! OIL! OIL!—For railroads, steamers, and for machinery and burning—Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough, and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer.
T. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 6tf

MECHANICS' ROOMS, WITH STEAM POWER, to Rent, in Cleveland, Ohio—The undersigned has just erected a large three story brick building, tin roofed, two hundred feet long, and one hundred feet wide, and to be furnished with two large steam engines expressly designed for the growing mechanical wants of this vicinity. The apartments will be divided and power rented, to suit the wants of tenants. The location is central, conspicuous, and convenient to canal, railroads and lake shipping. Few mechanics or manufacturers are aware of the vast number of articles which are used in immense quantities in the Western States, which have been hitherto wholly manufactured in the Eastern States and which may be made here to better advantage. The premises will be ready for occupation early this fall. For further information apply to J. L. HEWITT, Cleveland, Ohio. 5 5

ESTABLISHED IN 1796—Philosophical, Mathematical, and Optical Instruments. Our priced and illustrated Catalogue furnished on application, and sent by mail free of charge. McALLISTER & BROTHER, Opticians, 48 Chesnut st., Philadelphia. 3 6*

MACHINISTS' TOOLS—The subscribers would respectfully call the attention of machinists and engineers to their Patent Improved Tool Rest for Engine Lathes, they are now prepared to receive orders for Engine Lathes with this improvement, and will spare no pains nor expense to make their machines a first rate article in every respect. Novelty Iron Works, Boston, Mass. W. W. NICHOLS & CO. 14 eow

MACHINIST'S TOOLS—Now finished, two Engine Lathes, 9½ feet bed, 18 inches swing; one do. with screw cutting apparatus; also, one 7½ feet bed, 18 inch swing; and two do. with screw, from new and improved patterns and of superior workmanship, by C. S. TOLMAN & CO., Fitchburg, Mass. 3 6eow*

UNITED STATES PATENT OFFICE,
Washington, September 28, 1854.

ON THE PETITION of Caroline S. Williams, administratrix of Thos. R. Williams, deceased, of Moreau Station, New York, praying for the extension of a patent granted to the said Thos. R. Williams, on the 14th of December, 1840, for an improvement in the "machinery for forming bats for felting," &c., for seven years from the expiration of said patent, which takes place on the 14th day of December, 1854:

It is ordered that the said petition be heard at the Patent Office on Monday, the 27th of November next, at 12 o'clock M., and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days from the day of hearing. All testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the Office, which will be furnished on application.

The testimony in the case will be closed on the 17th of November; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Evening Argus, Philadelphia, Penn.; Scientific American, N. Y.; Post, Boston, Mass., and Daily Courier, Buffalo, N. Y., once a week for three successive weeks previous to the 27th of November next, the day of hearing.
CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 6 3

UNITED STATES PATENT OFFICE,
Washington, September 28, 1854.

ON THE PETITION of Caroline S. Williams, administratrix of Thomas R. Williams, deceased, of Moreau Station, New York, praying for the extension of a patent granted to the said Thomas R, Williams, on the 14th day of December, 1840, for an improvement in "machinery for hardening bats in felting," &c., for seven years from the expiration of said patent, which takes place on the 14th day of December, 1854:

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CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 6 3

NEW HAVEN MANUFACTURING COMPANY Machinists' Tools. Iron planers and Engine Lathes of all sizes. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Chucks, &c., on hand and being built by the quantity, which enables us to sell low. For cuts giving full description and prices, address New Haven Manufacturing Co., New Haven, Conn. 1 tf

RENSSELEAR POLYTECHNIC INSTITUTE—Designed for the education of Architects and Civil Engineers, including Railway, Hydraulic, Topographical, and Mining Engineers. For copies of the Annual Register, giving full information respecting the Institute, apply to B. FRANKLIN GREEN, Director, etc., R. P. I., Troy, N. Y. 1 8*

WOODWORTH'S PATENT Planing, Tonguing Grooving Machines—Double machines plane both sides, tongue, and groove at one and the same time, saving one half of the time when lumber is required to be planed on both sides. Large assortment constantly on hand. Warranted to give entire satisfaction to purchasers. JOHN H. LESTER,
4 6* 57 Pearl st., Brooklyn, L. I.

YOU CAN GET THE NEW YORK WEEKLY SUN three months for 25 cts.; six months 50 cts.; one year, 75 cents, 16 months, $1. Or three copies one year, $2; eight copies $5; twenty-five copies $15; and by canvassing for subscribers you may get one of the five cash prizes $50, $20, $15, $10, and $5—for the largest lists sent in before 3rd Feb.—Specimen copies gratis.—Send letters and money (post-paid) to MOSES S. BEACH, Sun Office, New York. 6

TO CAPITALISTS AND MANUFACTURERS—The New York Cast Steel Works, corner Second Avenue and 47th street, are for sale or to let, affording a desirable opportunity for those desiring to engage in the business. Address or call on DANIEL ADEE, Agent, 107 Fulton st., N. Y.

Steam Engines for sale, cheap for cash, one of six-horse power, and one of two-horse power. Apply as above. 6 4*

COTTON AND WOOLEN MANUFACTURERS Supplies of every description: also machinery of all kinds; wrought-iron Tackle Blocks of all sizes; Leather Belting superior oak tanned; Bolts, Nuts, and Washers of all sizes on the most reasonable terms.
6 13* SAML. B. LEACH, 51 Broad st.

GREAT AUCTION SALE OF MACHINISTS TOOLS—JOHN PARSHLEY will sell at Auction, on Wednesday the 22d day of November, 1854, at his shop, in New Haven Conn., 75 Engine Lathes of all sizes, 12 Bolt Cutting Machines, a number of Drill Presses and 12 Iron Planers, all of which tools are built in the best workman-like manner, and can be seen on or before the day of sale. Circulars giving all required information, and cuts of tools, will be sent to all post paid applicants. 5 8

GLOVER'S DOUBLE-POINTED SPRING-CASE PEN—Patented August, 1854. (See engravings in the Scientific American, No. 4, Vol. 10.) Territory for sale by W. R. GLOVER, Glasgow, Ky. 5 6*

WARREN'S TURBINE WATER WHEEL.—Manufactured at the Wareham Manufacturing Company's Works, Wareham, Mass. These Wheels are now in extensive use in New England, and are constructed in the best possible form for using water with the greatest economy. They are equally adapted to all manufacturing purposes, and under all heads, and not affected by back-water. For particulars, certificates, &c., address JACKSON WARREN, Wareham, Mass. 5 5*

I AM PREPARED TO SELL Lyon's Copper Lightning Rod, (illustrated in No. 5 present volume of the Sci. Am.,) for the States of New York, Pennsylvania, and Ohio; price per foot, all ready to put up, including glass insulators and electroplated or gilded points, sixteen cents; any party buying several hundred feet of us, at the above price, will be entitled to the exclusive right to sell the rod in the town where such rod is used, also a liberal deduction on all rod purchased thereafter. All orders for rod or otherwise must be sent directly to the subscriber, where the rod will be boxed and delivered. J. P. LINDSAY, No. 4 North Market street, Boston, Mass. 5 4

WIRE ROPE OF IRON AND COPPER—For Mines, Inclined Planes, Hoisting and Steering purposes, Stays or Braces, &c., &c., much safer and far more durable than the best hemp or hyde ropes. Also for Sash Weights, Dumb Waiters, Lightning Conductors, &c. CHARLES W. COPELAND, No. 64 Broadway. 5 3m

KENTUCKY LOCOMOTIVE WORKS—Corner of Kentucky and Tenth streets, Louisville, Ky.—The proprietors of the Kentucky Locomotive Works would respectfully inform Railroad Companies and the public generally, that, having completed their establishment, they are now prepared to receive and execute orders with fidelity and dispatch. They will contract for Locomotives, Passenger, Baggage, Freight, Gravel, and Hand Cars, of every style and pattern, as well as all kinds of Stock and Machinery required for railroads.—Particular attention will be paid to Repairing, for which they have every facility. They are also prepared to contract on favorable terms for building all kinds of Machine Tools, such as Turning Engines, Laths, Planers, Drills, Slotting, Splining, and Shaping Machines of every variety of pattern. Having also a large Foundry connected with the establishment, orders for castings are solicited, and will be filled with promptness. Car Wheels of any pattern can be furnished on short notice. Double and single plate and Spoke Wheels of all sizes constantly on hand. Communications or orders must be addressed to OLMSTED, TENNEYS & PECK, Louisville, Ky. 40 6m*

MECHANICAL ENGINEERING—CHARLES EHMAN & CO., Consulting Engineers and Designers, 333 Broadway, New York. Designs, Working Drawings, estimates and contracts for high or low pressure steam engines (Ehman's improved vertical engine) Boilers, Pumps, Presses, Saw and Grist Mills, Tools and Machinery of every description. Particular attention paid to making drawings and working plans for inventions and models, to the construction of patent machines, etc., etc, Arrangements made, and plans furnished for putting up and locating Engines, Boilers, Shaftings, and all kinds of machinery in buildings, etc., etc. 51 8*

THE TRUMBULL IRON WORKS—located in the town of Stonington, Conn., manufacture a superior article in the way of Machinists' Tools—they particularly call the attention of those in want of Planing Machines and Gear Cutters, offering a guarantee the same cannot be excelled in any establishment in this country. All articles delivered at the Company's Docks or Railroad Depot, free of expense. 4 tf

STEAM ENGINES AND BOILERS FOR SALE.—One new eight-horse engine. One second hand five-horse engine. Tubular boilers, second-hand, suitable for same. One second-hand two horse portable engine and boiler. THOS. PROSSER & SON, 28 Platt street, 4tf

STAVE AND BARREL MACHINERY—Hutchinson's Patent. This machinery which received the highest award at the Crystal Palace, is now in daily operation there. Staves, heading, &c., prepared by it are worth to the cooper 20 to 40 per cent. more than when finished in any other way. Special attention is invited to the improved Stave Jointer. Apply to C. B. HUTCHINSON & CO., Crystal Palace, or Auburn, N. Y. 1 tf

PATENT DRIERS—Zinc Driers, Graining Colors, Stove Polish, Gold Size, &c., &c., 114 John street, New York. QUARTERMAN & SON, Manufacturers. 1 6m

JOHN PARSHLEY, manufaeturer of machinist's tools, No. 5 and 7 Howard street, New Haven, Ct., is now finishing a lot of iron planers to plane 8 5-12 feet long, 30 in. wide, and 26 in. high, having the down and angle feed in the cross head, the planers all of the best quality, and prices extremely low for the quality. Cuts with full particulars can be had by addressing as above, post-paid. 1 tf

A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Messrs. Munn & Co., Scientific American. 16 1y*

HARRISON'S GRAIN MILLS—Latest Patent.—$1000 reward offered by the patentee for their equal. A supply constantly on hand. Liberal Commissions paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to S. C. HILLS, our agent, 12 Platt Street, New York. 1 tf

NEW PATENT FLOUR AND GRAIN MILL—Patented June 6th, 1854. The subscriber is finishing the following mills: 8 twenty inch, price $100; 6 thirty inch, $200; 3 three feet, $300; 2 four feet, $400, and will pay $1,000 for any other mill as durable, simple, economical of power, which will grind as much from one dressing, which will heat the flour and meal as little, and is as easily kept in order. Cuts sent to post-paid applications, and liberal commissions allowed to agents for cash orders. EDWARD HARRISON, New Haven, Conn., July 24th. sole owner of all interest in the patent right. 50 9*

ENGINEERING—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc.
CHARLES W. COPELAND,
1 tf Consulting Engineer, 64 Broadway.

THE MERIDEN MACHINE CO.—Successors to Oliver Snow & Co., West Meriden, Conn. Have on hand and make to order a great varlety of Lathes, Planers, and other machinists tools of superior quality and finish. Cuts of these tools may be had on application as above, with full particulars. They also manufacture Farnam's Patent Lift and Force Pumps of all sizes. For mines, factories, railroad stations, &c. Having a large and extensive variety of patterns, the accumulation of over 20 years business, and extensive facilities for making light or heavy castings, are prepared to contract for any kind of mill work, mining machinery, &c. New York Office and Sample Room, No. 15 Gold, cor. Platt st. 1 3m*

PHŒNIX IRON WORKS—GEO. S. LINCOLN & CO., Hartford, Conn. Manufacturers of Machinists Tools. Are constantly making and have now on hand an assortment of Screw Cutting Engine Lathes, viz.:—No. 1. bed 10 ft. long, swing 20 inch. No. 2. bed 14 ft. long, swing 30 inches. No. 3. bed 16 1-2 ft long, swing 40 inches, with improved bed, cast steel spindles, feed motion carried by a screw, toothed rack for moving tool rest by hand, improved gibb rest and tool stock, stationary and traveling back rest; also manufacturers of Lathes for turning Locomotive Driving Wheels, small Power Planers, Upright Drills, Power Punching Presses, &c. Designs of the tools with further descriptions, will be sent by addressing as above. 1 3m*

ENGINEERS, DRAUGHTSMEN, AND MECHANICS supplied with Drawing Instruments, separate and in cases. Parallel Rules, Scales, Dividers, Metallic Tape Measures, Linen do., Chains, Surveyors' Compasses, Levels and Transits, and a large assortment of Optical and Mathematical Instruments, wholesale and retail by JAS. W. QUEEN, of the late firm of McAllister & Co., 264 Chesnut st., Philadelphia. Illustrated catalogues gratis by mail. 3 3m*

NORTHVILLE MACHINE WORKS—Manufactory of Machinists Tools, consisting of Engine Lathes, Power Planers, Hand Lathes, Engine Lathe for turning chair stuff, all of the most improved patterns and quality of workmanship. Worcester, Northville, Mass.. August 9, 1854. TAFT & GLEASON. 50 1y*

NORCROSS' ROTARY PLANING MACHINE—The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.

Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.

The printed report of the case with the opinion of the Court can be had of Mr. Norcross, at Lowell, or 27 State street, Boston. 36 6m*

MACHINISTS TOOLS—SHRIVER & BRO., Cumberland, Md., (on B. and O. Railroad, midway between Baltimore and the Ohio River,) manufacturers of Lathes, Iron Planers, Drills and other machinists tools
50 6m*

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Science and Art.

Cements, Roofing, &c.

An inquiry having been made of us, not long since, by a correspondent, relating to a roofing material cheaper and as good as shingles, a friend has sent us the recipe for making such roofing, according to the patent granted to W. H. Poindexter, Fayette, Tenn., the administrator of the inventor—J. R Remington.

CEMENT FOR FIRE PROOF ROOFING—Tack down on the boarding of the roof thin cotton cloth or paper, such as is employed to put on pitch and gravel. For every ten feet square, boil about two gallons of pure linseed oil, four to six hours, and stir into one gallon of the oil two quarts pure cotton seed ashes, one pint of red lead or white lead in oil, and seven gallons of fine, dry, clean sand. If a brown or gray coat is desired, add a half-pint of lampblack to the red or white lead. Now moisten the cloth with a mop or brush dipped into oil with a little of the ashes in it, and spread the cement with a plasterer's trowel, rubbing and pressing hard, and having the first coat one quarter of an inch thick, and the second one-eighth. The plank must be seasoned and dry. The patent for this cement is on the list of the fourth of July last, and it appears to be a very good composition. The claim is for the use of cotton seed ashes, or the ashes of any other oil-yielding vegetable substance as an ingredient of cement.

A common kind of composition roofing, but used to a very limited extent here, is made by a mixture of pitch, tar and some linseed oil (about one pint to the gallon of tar) boiled in a kettle, with which is stirred some dry sharp sand (about a pound to the gallon), laid on the roof while hot, then covered with dry sharp sand and clean gravel, pressed down with a spade or shovel. It is put on in one coat, on coarse factory cloth, previously tacked down on the boards. This makes a tolerably good roof; still we believe that a shingle roof is generally preferred to this. Some roofing cements have been made without oil, merely with pitch and tar, covered with gravel and sand, but the oil tends to prevent the cement from cracking when it gets dry, and should therefore always be used as part of the composition. If about an ounce of litharge be used to every pint of oil, the cement will be greatly improved.

CEMENT FOR WALLS—A cement which gradually becomes as hard as stone, may be made by mixing twenty parts by weight of clean sharp sand, two of litharge, and one of whiting, and making them into thin putty with linseed oil. It is excellent for filling up the cracks between stones, such as stairs, &c., or seams in brick walls. White or red lead thinned with boiled linseed oil, into which some sharp, dry, white sand is stirred, makes an excellent cement for seams in roofs.

The common cement used for the joints of water and gas pipes is white lead; it seems to be the best and most convenient cement for such purposes.

Exploding Mines and Grenades.

Capt. J. Norton, of Cork, Ireland, seems to be devoting his life with success, to some of the most astonishing applications in military engineering. He has invented a method of firing grenades for house defence, submarine shells, exploding mines, &c., by a most simple frictional contrivance, which is operated by pulling a cord, which may be of any length, and is more convenient than a galvanic battery.

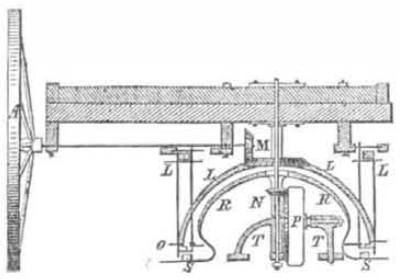
Anthracite Coal in Ireland.

Anthracite coal has been discovered in Ireland, in the County of Caran. It is four feet in thickness. A specimen of the coal, analyzed, presents the following constituents:—Carbon, 77·63, Water, 4·35, Ash, 18·02; total, 100·00. It contains no bitumen, but a far greater proportion of carbon (as Professor Harkness subsequently observed,) than any fuel of the same class hitherto known, even the celebrated Boghead coal, and is therefore invaluable for furnaces, steam engines, &c. —[Exchange.

Boghead is a cannel coal, and the above comparison with it is an erroneous one. We hope that more coal will be discovered in Ireland, for assuredly it is the want of coal which has made her fail to compete with the steam power of England, in many kinds of manufactures for which she was once not a little famous.

History of Reaping Machines.—No. 5.

FIG. 19.



In 1815 Mr. Gladstone also produced an improvement upon his invention of 1806. It is described in Vol. 17, of Brewster's Edinburgh *Encylopædia*, from which the following account is condensed. The engraving, 19, represents a posterior view of the machine.

A is the wheel carrying one side of the machine and giving motion to the gatherer, L, by means of a pinion working into a wheel fixed on it at M; L L L L is the gatherer moving round the common center, N, and having the form of a cylinder of thin boards, with teeth standing out from holes at the sides where the corn is cut, and put back again within the cylinder at O; P is a small wheel carrying the principal part of the machine, with segments of cast iron on it, acting on the pinion on the socket of the cutter; R R is the cutter, it has four iron arms bent so as to allow the teeth of the gatherer to pass when thrown in. Each arm of the cutter has six cutter-blades bolted to a bar of iron at S S, to which the arms are likewise bolted; T T are arms of the center bar, the use of which is to fix the teeth for gathering the grain, and acting as an axle for the center wheel, P, for carrying the machine.

It is stated that "when this machine was thus constructed, it was submitted to trial and found to have no tendency to choke, but kept itself clear, and laid down the corn with great regularity."

In 1820 Joseph Mann, of Cumberland, invented a machine which he averred contained the four principal points of a good reaping machine, viz., 1st. "It preserves the parallelism of the line of the draft, though drawn from an angle. 2nd. The polygonal cutter. 3rd. The gathering process performed by revolving rakes. 4th. The process of stripping the rakes in such a manner as to lay down the cut corn in a regular swath. The machine as now constructed cuts a breadth of 3½ feet at each turn, is drawn with ease by one horse, and is capable of cutting ten acres in a day of ten hours." A description of this machine is given in Vol. 4, of the *Quarterly Journal of Agriculture* Edinburgh, p. 250, to which we add the annexed illustrations.

Fig. 20.

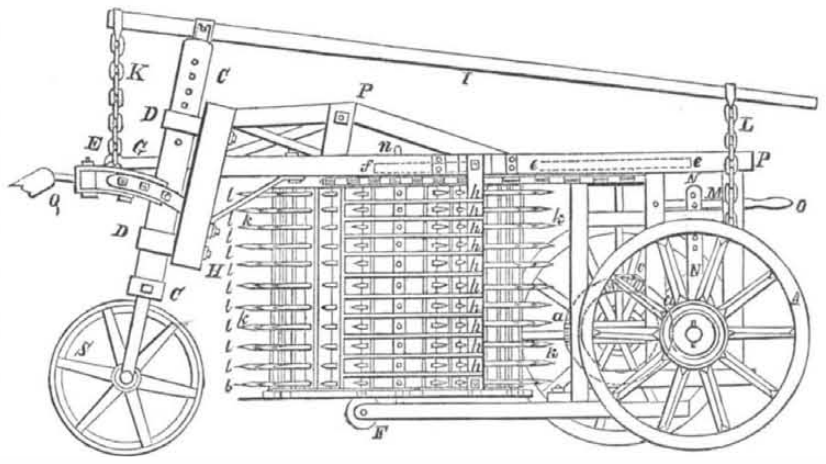
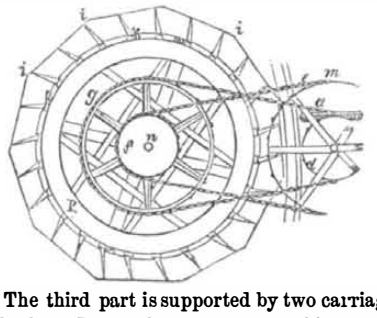


Figure 20 is a geometrical elevation of the machine, and figure 21 a horizontal plan. The same letters of reference are used for both figures.

The cutting process is performed on the revolving principle, with a polygonal cutter of twelve equal sides. By the adoption of this form of cutter, the action on the standing grain is different from that of the circular cutter; with the latter the cutting edge is continually in contact, but with this the effect is produced by a very rapid succession of strokes, arising from the inclination of the cutting edges of the polygon to each other. The progressive motion of the cutter alters the effect only in degree, for still the first half of the angle will produce little or no cutting effect, while the remaining half will give a species of stroke resembling that of a scythe, and which is more effectual than if the edge were continually in contact, especially against a flexible body like the culm of the cereal grasses. The cutter, *i i*, figure 21, is formed of twelve separate segments of thin steel plates, fixed upon the extremities of a corresponding number of arms attached to a vertical shaft. These are fixed to the arms by means of slender sliders, which are riveted to each end of the segments, and, passing through a clasp in the end of the arms, they are secured in pairs by a screw nut. By this arrangement, any one or the whole of the segments can be removed and replaced in the course of a few minutes. The gathering cylinder is made to revolve upon the vertical shaft of the cutter frame; it is mounted with a set of vertical rakes to the number of twenty-five, each armed with nine wooden teeth and one of iron, for greater strength set next the cutter. This cylinder with its rakes revolves concentric and in the same direction with the cutter, but at a greatly reduced velocity, making only one revolution to seven of the cutter. Its office is to collect the stalks of corn as they are cut, and carry them round to the near side. In order to discharge the contents of the rakes, an ingenious and simple contrivance is adopted in the form of a comb attached to the near side of the machine. The comb consists of eight teeth, marked with the letters, *h h*. These teeth, standing in the spaces between those of the rakes, strip the latter of their collection of cut corn, as they successively arrive at the point of contact with the comb. The grain by this action is deposited in a continuous swath, nearly at right angles to the line of direction.

FIG. 21.



The third part is supported by two carriage wheels, A B, and the fore parts are chiefly supported upon the castor wheel in front, which is attached to the movable stem, C, made to turn in the iron collars, D D. The arm, E, to which the horse shafts are applied, is firmly attached to the stem, so that, in the act of turning, the castor wheel follows the direction of the horse shafts, and causes the machine to turn round in a very small space.

Besides these three principal wheels, there is a fourth, in the form of a small roller, worked in the extremity of the perch, F, which is intended only as an incidental support to the cutter and rakes, the common shaft of these having its footstep in the extremity of the perch.

The motion of the active parts is communicated by the off-side wheel, on the axle of which is mounted a bevelled wheel, *a*, and on an upright shaft is mounted a pinion, *c*, working in the former.

The projection bar, G, is fixed to a pendant bar of the frame work; the lever, I, is supported in its fulcrum, which turns on the head of the stem, and a connection is formed by the chain, K, between the end of the lever and the fore part of the machine by means of the bar, G. By this combination, together with the chain, L, the director of the machine has it in his power to raise or depress the fore part and cutter at will. There is the same facility of raising or depressing either side of the cutter to suit the rounding of the ridges and for running in deep furrows; *d d*, *e e*, *f f*, and *g g*, are pitch wheels, whose several uses are obvious. P P, &c., are parts of the frame work; Q are the horse shafts; S is the castor wheel; *m* is the pitch chains, and *n* the upright shaft of the cutter and rakes.

Remains of Sir John Franklin Discovered.

Intelligence has been received in this city from Montreal, of the discovery, by Dr. Rae, of the remains of Sir John Franklin and his companions, north-west of Box River. Dr. Rae had been sent out on a land exploration in search of the lost navigator, and has been absent for some years. It is stated that Sir John and his companions perished by starvation in 1850. Further details are looked for with great anxiety.

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